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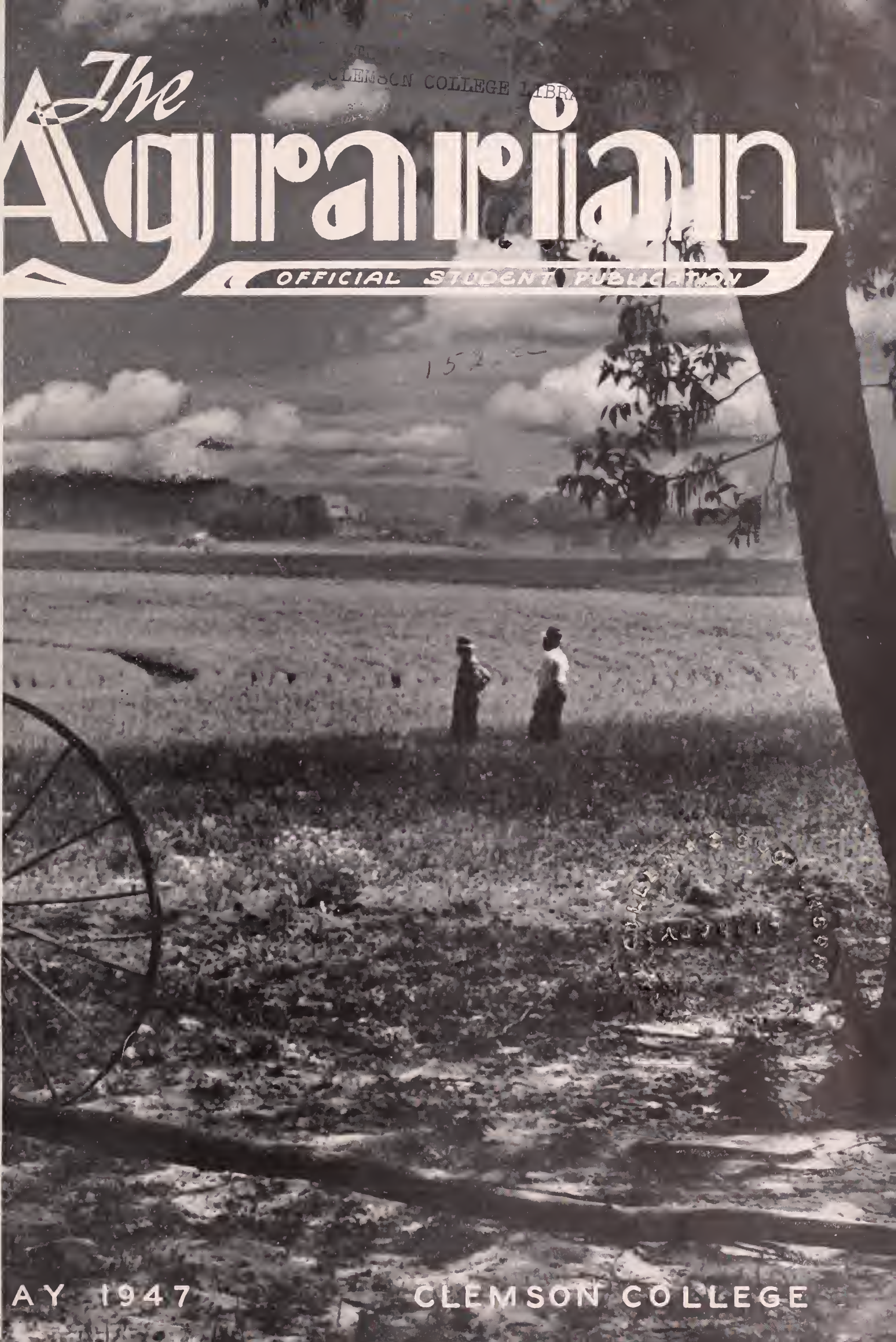

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COVER—A farmer in Anderson county looks over his fields of grain.

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Clemson, S. C.
Mar. 3, 1947

Dear Sammy:

Plans for your high school graduation sound fine. They certainly make me realize that my "little brother" is about grown. And I'm mighty glad that you'll be entering Clemson next fall.

I know just what you mean about not knowing what course to sign up for here. It worried me the same way, and I had to find out the hard way. Remember what a big shot I thought I was leaving the farm to become a Clemson "rat"? I was going to become an engineer or chemist or something, and never have to look at a farm again. No more milking cows on cold winter mornings or breaking my back making hay! Look at me now -- a senior in Agriculture at Clemson, and happy as a lark.

I don't suppose I should write the rest of this letter, for I can hear you say now, "There goes that brother telling me what to do again. I wonder what he thinks I am, a dumbell?" No, Sammy, I don't. That is why I want you to think seriously before deciding what to study here.

Don't be fooled into thinking that everything that glitters is gold. I was going to be an engineer. Why? Mainly because it sounded good. It was the thing to do. So many freshmen get into something they know very little about, figuring that they will make a lot of money in a few years. My freshman year was a big disappointment. The "D's" and "F's" on my report card showed that I didn't have the aptitude in mathematics and some other things to make a successful engineer. Of course, some fellows who were looking for greener pastures did all right. For all I know, you might. But it's a big chance to take.

It now seems so strange to me that anyone who was raised on a farm could overlook the opportunities which are his. I don't suppose any occupation offers greater pleasures and satisfactions than agriculture. You and I are farm boys. We like hunting, fishing, or just generally taking a day off now and then if we want to. We like to watch and help things grow. We like nature and have lived with it.

With my training, I'm going to return to the farm. I know I'll make good and be very happy as well. However, the Clemson graduate in Agriculture will find many openings with state and federal agencies, industries related to agriculture, and others. Engineering and textiles offer very good job openings too, but why throw away your valuable farm background?

Well, I've said enough. Just don't wait until you get up here to decide what to take. You'll be confused enough at best. So give it serious thought now.

Give my love to "Mom". Write when you have a chance.

Your brother,
DICK.

MAKE HOME TANNING A HOBBY

Naturalists Can Tan Skins and Make Leather With Simple Equipment and These Directions

By WADDY F. MCFALL
Instructor in Zoology

TANNING IS sometimes referred to as an art, and those who have just attempted their first tanning job without proper instructions or knowledge of procedure will surely agree to that name.

Actually it is not an art, though some phases of the work do require a certain amount of skill. Almost anyone, however, who has the time, patience, desire to learn and a few suitable skins to practice on can generally achieve quite satisfying results after a few attempts.

Tanning is a process for loosening up the fibers of a skin, making it soft and pliable, and so treating it that it will remain in that condition. There are a number of ways to accomplish this and all methods seem to have their good and bad points depending upon what the finished skin is to be used for.

I shall describe here a few of the more simple methods for tanning furs and making leather. All of these methods are good and if directions are followed closely little difficulty should be experienced in turning out nice work.

To begin with select a skin that is prime, in other words one that was taken in cold weather and that is light colored on the pelt or flesh side. Summer skins are usually a dark bluish color on the inside and the roots of the hair may be seen protruding through the skin when all flesh and fat has been removed. Such a skin is unfit for tanning or any other purpose. I would also advise starting on a skin that is not too large or heavy. The common house cat has an excellent skin to experiment with.

The first and one of the most important steps in tanning any pelt is to prepare the skin for tanning. Failure to do this properly will result in disappointment regardless of how carefully you follow all the other steps in tanning. Nearly all skins have a very thin, tough membrane resembling strong tissue paper attached to the flesh side. This membrane must be completely removed along with all flesh and fat that may remain attached to the pelt after skinning.

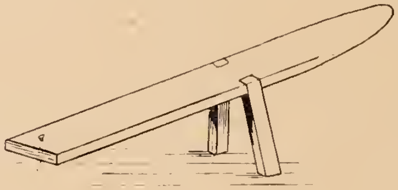
Figure 1

If you start with a fresh skin the fleshing process can be most easily done by stretching the skin out on a board or floor and applying salt to the flesh side. Let it remain in the salt overnight or until the skin begins to get slightly firm but not dry. A little experience will teach you when the skin is in exactly the right condition to be fleshed. When you think the skin is ready brush away the loose salt and lay the skin on a smooth table or better still over a fleshing beam (Fig. 1) and scrape away all flesh, fat and the membrane lining the true skin. The scraping can be done with a dull knife blade, the edge of an old file or any other scraping tool that may suggest itself to you. A handy tool for scraping small skins can easily be made from a hack saw blade and a small block of wood as shown in figure 2.

If you wish to tan an old skin which has been dried out it will first have to be soaked up in plain water or water to which a little salt has been added before it can be properly fleshed. Leave it in the water until it is thoroughly relaxed but no longer than is necessary else the hair might start slipping. After it is relaxed salt it down and treat it just the same as a fresh skin.

When fleshing a skin always scrape from the tail end towards the head, otherwise there is a great deal more danger of cutting or tearing through the hide. If a skin is in good condition it is often possible to peel the membrane off with the fingers after getting it started with a scraper. If this can be done it will save a lot of time and will usually result in a neater job.

After the skin is thoroughly fleshed wash it in plain water to remove the remaining salt and dirt. If the skin is slightly greasy use soapy water to cut the grease and then rinse thoroughly in plain water. Or if the skin is very greasy it is well to wash it first in gasoline, using several changes of gasoline if necessary, then wash it in soapy water to remove the gasoline, finally rinsing in plain water to remove the soap.

Now you are ready to proceed with the actual tanning. Below are three methods suitable for small or medium size skins up to the size of a deer. The first method is a salt-alum process and is especially recommended for skins with a fine, soft fur. It may be used with equally good results on any small skin however.

Dissolve one pound of alum in one gallon of water. In another contain-

(Continued on page 27)

GUEST EDITORIAL

A Challenge -- Stay South

New Openings Pointed Out By A Leading South Carolina Citizen

By **THE HONORABLE R. M. COOPER**
Board of Trustees, Clemson College

THE NEED to blend industry and agriculture into a prosperous economy is an old story to the South and, at times, the goal has seemed far too distant.

Today, there is real progress to report.

New industries—579 of them in South Carolina alone—are coming into the South. The established industries are expanding, those in South Carolina having already allocated $198,000,000.00 for new buildings, additional working space, warehouses, etc.

Mr. R. M. Cooper, Director of the South Carolina Research Planning and Development Board, is a former State Senator, Collector of Internal Revenue for South Carolina, and General Manager of the South Carolina Public Service Authority (Santee-Cooper). He was an elective member of the Board of Trustees of The Clemson Agricultural College from 1921 through 1933, resigning upon his appointment as Internal Revenue Collector, and has been a life member since 1935.

Mr. Cooper's experience as an outstanding farmer of Lee County, ability, loyalty and sincere devotion to Clemson College has played a most important role in Clemson's growth and development.

In view of Mr. Cooper's experience in helping to bring industry to South Carolina and his close personal knowledge of southern agriculture, he is well qualified to challenge southern people to take up the many opportunities their native land has to give them.

—The Editor

The trend toward industrialization is heavy. Its effect on per capita income, education and better living in general should be extremely telling.

On the other hand, agriculture, the basis of most southern states' economy, also is broadening. Soil improvement and conservation are more and more recognized as vital factors. Processing plants, dairies, more cash crops and, with them, a more stable financial status for the farmer are being built up.

The movement is so broad that few of us are able to study and analyze every phase. One, in particular, is most gratifying.

That is the leadership, especially among bankers, in helping to develop the South. As a group, the bankers have helped for years, but today there is an all-out effort evident. They are doing everything possible to extend credit to veterans, to young men and to all farmers.

Their new methods of measuring loans in productivity of the land what can be done to increase it are in keeping with the new attitude of the South.

It is just as important in results as the preparation of farm lands for mechanization, the finding of new means of processing cotton, the progress of scientists in discovering the way to fashion fabric from peanut hulls . . . perhaps, more important. For the farmer has been encouraged for years to save and improve the soil.

Today, there is more incentive—a long-range plan to make his fields more productive and, in turn, to lend impetus to the progress and development of agricultural industry and the prosperity which is certain to grow with it.

There is no question in my mind that the balance between industry and agriculture can be achieved with the material and equipment at hand. It is, however, a matter of hard work.

That is up to you—a challenge that young southerners should be proud to accept.

OPPORTUNITIES IN LIVESTOCK

Animal Husbandry Department Expands with Changing Agriculture; Adds New Barns, More Pastures, Improved Sires, Research Work

By **D. M. CAMP**
Animal Husbandry, 1947

SPRING IS certainly here in South Carolina. The countryside is greener than ever before due to increased acreages in pasture land. Numbers of livestock are increasing, meat prices are high, the demand is heavy, and interest is being shown all over the state in pure bred animals. The enrollment at Clemson College has increased greatly and the percentage of students majoring in Animal Husbandry has also increased. With all of these facts in mind, a clear picture of the work being done by the Animal Husbandry Department will be presented in this article.

With the changing system of farming in the South, Clemson is changing also. To meet the requirements of the students and the state, the entire system of buildings, pastures, herds, and flocks are being revamped.

The number and value of livestock in South Carolina has increased tremendously since 1930. The cash receipts from livestock and livestock products was $16,440,000 in 1930. In the years following this figure has grown and reached a height of $39,382,000 in 1945. The number of cattle on South Carolina farms has increased from 350,000 in the 1935-44 period to 400,000 during 1945. Hogs showed a similar increase from 615,000 to 704,000 during the same period. The value of livestock per head has made an increase from $32.60 for cattle during the 1935-44 period to $59.90 in 1945. In the case of hogs this increase has been from $8.94 to $19.10 for the same period. It is easily seen that it is vital that Clemson College carry on its work of educating students in the field of Animal Husbandry to an even larger degree.

The Clemson Animal Husbandry Department has been assigned 2000 acres of college property to develop into pasture and hay land. A large part of this land has been woods, steep hillsides subject to erosion, and generally land of sub-marginal types. So far the seeded pastures have aided in controlling gullies and other types of erosion. These pastures when properly fertilized, yielded a large amount of palatable and nutritious feed for the various types of livestock.

Some clearing of woodland has been done in order to increase the acreage suitable for grazing purposes. On average pasture at Clemson, it has been found that two acres of permanent type pasture for spring, summer, and fall grazing and two acres of temporary pasture for winter grazing will adequately support one animal unit per year with some additional feed being afforded during winter months. The permanent pasture usually consists of a mixture of Bermuda grass, annual Lespedeza, Dallis grass, and White Clover. Temporary pastures that afford winter grazing for a period of three or four months are usually seeded with one of several mixtures. Two of these are: small grains (oats, barley, rye) and Crimson Clover, or Crimson Clover and Italian Rye Grass. Both of these mixtures have proven very satisfactory.

A large amount of the land being developed was formerly part of an old plantation and was in badly run down conditions due to poor cropping systems. It is now the job of the department to build this land up to a degree of fertility that will support a reasonable number of animal units economically. With new and correct fertilizing practices and pasture management, this is being done.

In the past the problems of barn and other facilities for the various herds and flocks has been a serious problem. At this time, however, a new hog barn is being completed with facitlities for sows with litters, and for carrying out feeding tests and other experiments. There are sixteen individual pens for sows with litters and fifty experimental pens. A new beef barn is now in the blue print stage. Plans call for all the modern conveniences and equipment for fitting show animals. The plans also call for individual pens, wash ramps, stocks, and a combined show ring and judging arena.

An appropriation has been set aside for a sheep barn. If plans materialize, it will be the first time in the department's history that a barn was started with the idea in mind of housing sheep exclusively.

The herds and flocks now at Clemson are being improved by the use

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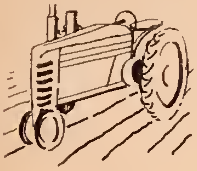

Attitudes About Agriculture

Causes of Misunderstanding Between "Ag" Students and Other Students Pointed Out

STUDENTS OF AGRICULTURE are often still regarded as a sort of poor country cousin by the students in other schools of this college. In spite of the obvious benefits to everyone of our scientific system of agriculture, it remains customary for certain persons in other fields to refer to agriculture as an easy course. While the farmers are amused by some of the so-called humor directed toward them, other expressions arising from ignorance or tradition are disgustingly below the level expected of college students.

Blame for personifying the agricultural student as some sort of quaint rural character does not necessarily rest with individuals now at Clemson. Indeed, the attitude is prevalent within other colleges and universities over the country. It is time to recognize that those pursuing undergraduate study in the agricultural sciences are at least on equal footing with students in other technical fields.

By **DUANE ROSENKRANS, JR.**
Managing Editor, The Agrarian

South Carolina is predominately an agricultural state, as are other states of the Southeast. Prosperity in agriculture is then necessary for industrial and social progress. The application of scientific knowledge to agriculture offers the greatest hope of a better way of life for all Southern people, urban and rural alike.

To prepare themselves for responsible positions in the new system of agriculture, students must obtain a basic knowledge of mathematics, chemistry, physics, and especially of the biological sciences. None of these basic studies can be slighted, since all are present in the infinitely complex mechanisms of living plants and animals.

Besides having a general scientific background, the successful agriculturist is a practical man, who can apply his knowledge to producing greater yields, improving the quality of his product, controlling diseases, and establishing marketing systems. Since he must be practical as well as trained in science, the student of agriculture spends many hours in various laboratory exercises, ranging from actual farm operations to demonstrations of biological phenomena of which but a few years ago little or nothing was known.

The wise student of a true science thinks little in terms of comparing his chosen field with others. It is futile to discuss whether a mechanical or a biological science is the more difficult to understand. Each is based upon a great body of facts; so great that a single trained man can keep up with developments in only a limited field of specialization.

Much of the misunderstanding between schools is due to students who have unfortunately attempted the wrong courses because their individual desires and aptitudes are not discovered until after they have completed part of their college course. The fact that a student decides to transfer from engineering to agriculture is no reflection upon his mental powers; it is simply that his personality makes him better suited for work in agriculture. The reverse situation, in which a student is not suited to agriculture, may be equally true.

Tolerance and understanding toward all fellow students should be developed, especially at Clemson where all students have the common bond of studying some part of the vast body of true science.

— HOKE SLOAN —

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ARTIFICIAL INSEMINATION PROGRAM

Improvement of Dairy Herds in South Carolina Resulting From Clemson Research and Work with County Associations

By **H. M. HANCKEL**
Dairy, 1948

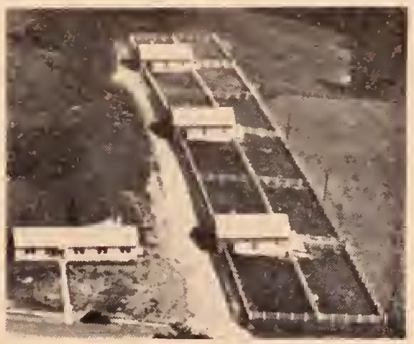
TO MEET the needs of the rapidly changing dairy industry in the South and in South Carolina, the Clemson Dairy Department in 1938 began extensive research and experimental work in artifical insemination of dairy cattle. As a result of this work and the work of countless others down the ages, many dairymen of our state are today reaping tremendous benefits by the use of artificial insemination.

Artificial insemination is known to have been used as far back as 1322 when an Arab chief used this method to breed his prize mare. The first research work was done in 1780 by an Italian physiologist who used it on dogs. By 1884, this method of breeding was used in many countries to breed horses and dogs. The semen was diluted with cows' milk.

A Russian, E. I. Ivanoff, in 1899, was the first to undertake successfully the artificial insemination of cattle. His results awakened much interest. The Russians were the first to develop the artificial vagina. It has been reported that in 1936, at one of the breeding centers in Russia, cattle were inseminated at a ratio of nine hundred cows to one bull.

In May, 1938, the first large cooperative in the United States was organized in New Jersey. Since this time, organizations for the artificial insemination of cattle have sprung up in nearly every section of the United States.

Under the guidance of Professor J. P. LaMaster artificial insemination was started in the Clemson College dairy herd in December, 1938, to eliminate the venereal disease, Trichomonasis, from the cattle. After using artificial insemination for a short time it became apparent that the time saved by this breeding method more than justified its continued use. Since 1942, all of the cows in the Clemson herd have been impregnated 100 per cent by this method. The rate of conception by this method is higher than by natural breeding.



Realizing the advantages that artificial insemination would provide in improving dairy cattle in South Carolina, Professor LaMaster has carried on an active campaign to initiate a state wide program. To carry on this program in an adequate way, a large outlay of buildings and equipment is necessary. Some progress has been made recently for obtaining these facilities. A dairy laboratory and three bull barns were completed at Clemson in May, 1946. The laboratory is fully equipped for collecting, processing, storing, and shipping of semen; also it has facilities for conducting a research program on the various properties of semen to determine the best grades to be used for the artificial insemination program. The bull barns are designed for conducting research work on feeding and management of the bulls to obtain the best results.

An extensive research program designed to improve the quality and increase the quantity of semen thru good nutrition and management of bulls used for articifial insemination was started in December, 1946, under the supervision of Dr. S. P. Marshall. Bulls of the Jersey, Guernsey, and Holstein breeds are being used to compare the value of different hays and to study benefits of including high quality protein supplements, soiling crops, a root crop, and a complex mineral mixture in the bull ration. Each month the bulls are weighed and their physical condition checked. The volume and quality of semen produced by these bulls are checked in the laboratory and a record of conception rate from its use in the Clemson Dairy herd is kept.

Dr. Harold Kinard reported at Clemson on February 14, 1947, to do research work on this program of artificial insemination. A South Carolinian from Colleton county, he attended Clemson for three years then went to Kansas State College where he got a doctor's degree in Veterinary Science.

Mr. Y. G. Lewis, a graduate of Clemson in Animal Husbandry in 1943, is the technician for handling this program in the Clemson Dairy herd and assists Dr. Kinard in operating the laboratory.

The first artificial insemination association was started May 9, 1945, in Spartanburg county in cooperation with the Spartanburg Cooperative

(Continued on page twenty-nine)

BRIGHT FUTURE

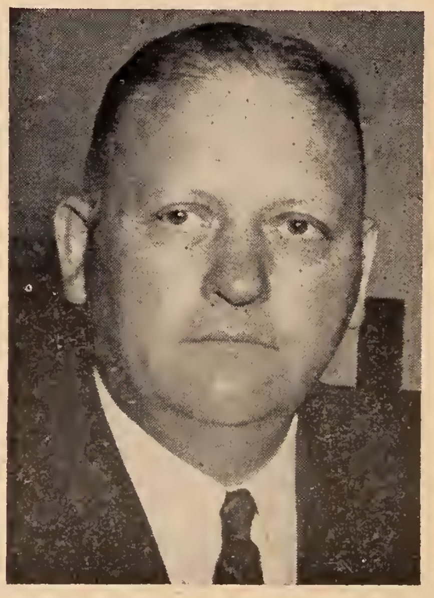
Agriculture Moves Ahead

Clemson's President Points To Bright New Day in South Carolina Agriculture

FOR A LONG TIME the South Carolina farmer lived the hard way. What he achieved was with brawny muscle and by the sweat of the brow. He followed from one year to the next the conventional practices of his time. He lived by faith and at the mercy of price fluctuations but he did no more than take these as natural functions. Of all mankind he deserved opportunities which would provide better living standards.

About 1890 land-grant colleges like Clemson, established in every state of the union, began to educate farmers in the sciences of plant and animal production. This inspired thinking and planning in such magnitude that the great agricultural research and farmer-teaching agencies developed in a phenomenal manner the like of which no other country has achieved. Fact finding, problem solving, result demonstrations, and an understanding of soils, fertilizers, adaptable methods of culture, varieties of plants, control of diseases and insects, advantageous marketing, and other values too numerous to mention were so well perfected that they gave the American farmer the knowledge that has made him the smartest, most enlightened, and most efficient farmer in all the world. His successful record of production during the two world wars stands as a monument to this achievement and loyalty.

American agriculture has become a progressive and highly competitive business making it necessary for the farmer of tomorrow more than the farmer of today to seek greater knowledge and use it for progressive guidance. He dares not do otherwise if he wishes to live well and prosper.



DR. R. F. POOLE
President, Clemson College

The ability of the farmer to produce abundantly has benefited the industrial and city people far more than they realize. A variety of good quality plant and animal products reach their tables at a cost low enough to afford most American families a desirable diet.

Under a highly productive system the South Carolina farmer runs into many treacherous problems of marketing his products advantageously. Neglect of the home market on the part of the farmer and use of imported food products on the part of the consumer has been detrimental to both farmer and consumer and to the well being of South Carolina. This ought to be a thought-provoking matter of interest to every South Carolinian. In stress and prosperous period alike it is sound business to market the products of the farm in home markets as far as it is feasible to do so and finish home products for others. Selling raw products is a major reason for South Carolina's slow income and efforts should ever be toward discarding any system that fails to give maximum returns. How else can the state, now and for years in the future, an agricultural state reach a prosperous stability when its people are fed by the farmers of other states? Our present conditions in this respect do not make sense to me.

The freezer locker system, which a large number of homes will own in a few years, will help the farmer market his home grown products and greatly improve the diet of all of our people..

The mechanization of the farms in South Carolina will not only reduce the drudgery of farming, but will increase efficiency of production and afford more satisfactory earnings for labor and management. These changes will be of great significance.

There are two deficiencies in South Carolina agriculture of which are of extraordinary importance. I believe correcting the first one would help improve the second one. The first one concerns finishing products of farm and forest for ready use by consumers and for sale at opportune marketing periods. For example, large quantities of canned peaches from California are consumed in

(Continued on page 32)

Economists in Agriculture

He Has Contributed Much to Agriculture In the Social Aspects of The Science

●

By **H. G. BARNWELL**
Agricultural Economics, 1947

OVER A PERIOD of many years, agriculture has evolved from the stage of a purely hit or miss proposition to its present position as a very highly technical science. Interest has gone beyond the stage of "Is the soil 'sweet' enough?" and is probing such scientific depths as "How can kaolinite be made more like montmorillonite?" Along with the strides in the physical aspects of the science of agriculture have been the strides made in the social aspects of the science. The agricultural economist has made a major contribution to this progress.

One of the greatest endeavors of the agricultural economist is the study of methods of improving our marketing system. "Marketing is the transfer of goods from the the producer to the consumer. Every essential activity for the accomplishment of this objective comes within this concept." 1 It was not until the Twentieth Century that the study of marketing received any attention, and in 1913, Congress appropriated funds for a marketing study. We study marketing so that merchants and producers may become more efficient in selling goods. It will also give us a fair understanding of one of the most important units of our economic system, and will help discover the reasons for the high costs of markèting, and might suggest some means of remedying the situation.

Clemson College has been working on marketing projects for a number of years. Much of this work has been done by the Agricultural Economics Department in cooperation with the Horticulture Department, and the results have been very gratifying. Cooperation with other branches of agriculture is essential to the success of the agricultural economist, and cooperation on the part of the other branches of agriculture is also essential if we are to have a workable system of agriculture.

In marketing studies, the workers must visit the scenes of the various operations all the way from the harvesting to the delivery of the product into the hands of the consumer. Experiments with different types of containers and packs all along the line to determine their functional and economic efficiency must be run. The costs of the various means of transportation must be analyzed, and the comparative economic advantage of each means of transportation determined. Frequently, storage of the goods is necessary. In such a case, the methods of storage must be studied. When the goods reach the retailers' shelves, the style of display most effective for a particular product is sought after, and the grade or type of product that commands the greatest demand on a particular market must be found. The effects of price changes on demand are also studied.

These and other studies must be made in marketing if the producer is to get a fair return for his effort. He must be rewarded, yes, but, more than that, he must be satisfied with his reward; otherwise, producers will be forced to seek other means of obtaining what they consider their just reward. We must keep the producer happy, we must keep the so-called "middle man" happy, and we must not make the consumer mad.

Another branch of the work of the agricultural economist, and one in which there is much room, is farm management. Farm management is that branch of agricultural economics which seeks to coordinate the various enterprises of the farm to the best economic interest of the farmer. This requires a study of each individual enterprise with respect to its requirements in land, labor, fertilizer, and all the other essentials in the case of crops, and land, labor, feed, and processing in the case of livestock and poultry. In this case, as in others, the farm management man does not seek to give technical advice, but he does seek to give the best economic advice in line with the latest technical recommendations.

One of the first things to be studied is the labor supply. This must be done to determine just how much labor can be counted on, so that the time of greatest demand for labor by one enterprise will not coincide with the time of greatest labor demand by another enterprise. Past production records, if available, are studied and analyzed to try to discover just what crop did best on a particular field. The farm management man must always keep abreast of the latest market predictions so as to be able to give the best advice as to what type of cash crop the farmer should plant, and he must be able to give advice on the comparative advantages of the different sections in producing crops. Agricultural cost accounting is also used in trying to determine which are necessary and which unnecessary expenses; this requires an up-to-date knowledge of the costs of various items of farm equipment and their relative values

(Continued on page 29)

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THE AGRARIAN PRESENTS - - -

William Barre Aull

Teacher - - Advisor - - Scientist - - Dean

WILLIAM BARRE AULL, Vice-Dean of the School of Agriculture and Professor of Bacteriology, is a man to whom all can look as a source of constant inspiration; for Dean Aull's life is one of loyal service to Clemson and of constantly overcoming physical handicaps.

Dean Aull was born in Newberry on March 24, 1887. His first schooling was received in the Newberry schools and later in the Pendleton Graded School.

Proof of his determination to work and make good can be seen in the fact that he entered Clemson in 1903 from the eighth grade of school. He had to stand an entrance examination which covered everything in order to be allowed to enter Clemson at the age of sixteen. After passing this examination with flying colors, he began his life as a Clemson rat.

Dean Aull says he had quite a time making up his mind regarding what subject in which to major. He first considered mathematics, then later Agriculture and Chemistry, which were then combined into one. However, he finally decided, with the aid of his brother, a member of the first class, to choose Agriculture and Chemistry.

There were about 700 students enrolled in Clemson then; and as he put it, "Things were really rough." To back this up, he recalled how reveille was held at 5:45 a.m. and taps and lights out at 11:00 p.m. For a country boy these hours were pretty long.

Then there were inspections, only five per day. There were also such things as demerits. Dean Aull says demerits never worried him, but for those who did have demerits, tours were always arranged. Men with demerits who were not officers could walk off one demerit per hour, and officers with demerits were required to sit in chapel, usually on Saturday afternoon.

Dean Aull was graduated from Clemson in 1907 and returned here that fall to do graduate work as Assistant to the Botanist. After some graduate work, he decided to teach; so began as principal of the Pendleton High School. However, still possessing a thirst for further learning, he borrowed money enough to attend the University of Virginia to continue his graduate work (1909-1910.)

By FRED K. NORRIS
Agricultural Engineering, 1948

After leaving the University of Virginia, he accepted a position with the South Carolina Seed Department at Clemson. Shortly afterwards, however, this department was moved to Columbia; and as the old saying goes, "Once a Clemson man, always a Clemson man," he elected to give up this position and remain at Clemson as Assistant to the Botanist (1911-1912.)

In 1915, Dean Aull became Assistant Professor of Bacteriology, and in 1917 he was named Associate Professor. He became Professor of Bacteriology in 1941.

Dean Aull further advanced his education when he spent the summers of 1925, 1927, 1928 at Iowa State College. In 1936, he received another "feather in his cap" when he was named to the high position of Vice-Dean of the School of Agriculture.

Since being at Clemson, Dean Aull has been very active, serving on numerous college and community committees. He is Chairman of the College Schedule Committee, Chairman of the Sears Roebuck Scholarship Committee, and Chairman of the Agricultural Curriculum Committee. In addition, he is the Agricultural Representative on the College Curriculum Committee, Secretary to the Agricultural Faculty, and Class Advisor for the junior and senior agricultural students.

As Class Advisor, he has given all students who seek him out invaluable advice. In this position he has guided and encouraged many students to greater achievements and success in their scholastic careers.

Among the fraternities and clubs of which Dean Aull is a member are the society of American Bacteriologists, the South Carolina Academy of Science, and the American Association for Advancement of Science, in which he is a fellow. He is also a member of Phi Kappa Phi, national honor fraternity, and Alpha Zeta.

Dean Aull is another of the Clemson "Old Timers," who by his kindly manner and considerate deeds has endeared himself to thousands of Clemson students.

Seed Certification Begins

Clemson to Direct New Program of Seed Inspection and Standards for S. C. Farmers

CERTIFIED SEEDS and plants, dependable because they were produced and handled under supervision of state inspectors, may soon become generally available to South Carolina farmers.

Action of the General Assembly was based upon realization of the fact that farmers of the state have, in the past, experienced difficulty in producing or otherwise procuring an ample supply of dependable seed and plants adaptable to their soils and climatic conditions. Much inferior production and increased cost can be prevented by seed certification.

R. H. Garrison, Associate Plant Breeder, who is in charge of the Seed Certification Service has done much to aid in this program.

Objectives of seed certification make the merit of such a program evident:

(a) Developing reliable sources of high quality seed or plants.

(b) Safeguarding the purity and quality of purebred seed and plants as developed by agricultural experiment stations and recognized plant breeders.

(c) Protecting purchasers of seed by maintaining an inspection service for certifying only seed and plants of high quality and known origin.

(d) Emphasizing the importance and value to farmers of certified seed and plants; and fostering the production, distribution and general use of the same.

Plans of the South Carolina Seed Certification Service contemplate the certification of small grains, cotton, corn and such other crops as demands may require. Only the varieties of a crop which are approved by the South Carolina Experiment Station or recommended by the Extension Service will be eligible for certification.

Tags of three colors will be used to designate different classes of seed:

(a) Stock seed furnished by breeders shall, if otherwise qualified, bear the official purple certification tag.

(b) The first year progeny from seed tagged with purple certification tags shall, if otherwise qualified, bear official blue certification tags.

(c) The second year progeny from seed tagged with purple certification tags shall, if otherwise qualified, bear official red certification tags. The progeny from seed bearing red certification tags will not be eligible for certification.

If a farmer desires to have a crop or crops certified, he must file an application for inspection with the South Carolina Seed Certification Service, Clemson, S. C. Application blanks may be obtained from this agency or from the local county agent.

Applications for certification of all small grains must have been made by April 20, those for tobacco and hybrid corn by May 1, and those for all fall-harvested crops by July 1. Farmers desiring to have seed certified must submit with their applications for field inspection, copies of the purchase orders or other acceptable evidences as to the **SOURCE, QUALITY**, and **QUANTITY** of the seed which they purchased. They must pay the inspection fees prior to the time of the field inspection.

Farmers must rogue their fields prior to inspection in order to remove off-type plants and noxious weeds. Representatives of the South Carolina Seed Certification Service will make field inspections of crops to be certified at times designated by the certifying agency; however, the majority of such field inspections will be made between the date of maturity of the crop and harvest.

An inspection will be made of the seed in the bin after it has been cleaned and made ready for sale. It is absolutely necessary that each lot of seed be kept separate and distinct from all other lots of seed. At the time of the bin inspection, a representative sample of the seed will be taken and sent to the seed laboratory of the State Department of Agriculture for an official laboratory analysis. If the results of the field inspection and the official laboratory seed analysis show that the seed meet certification standards, the farmer will be notified by the South Carolina Seed Certification Service and becomes eligible to receive the official certification tags, which will be furnished at nominal cost. The tags will show the varietal name, percent by weight of purity, percent by weight of inert matter, percentage germination, full name and address of the grower, full names and address of the person or firm selling the seed, name and number of noxious weeds seeds per ounce, results of the field inspection, and any other information necessary to conform to the seed laws of South Carolina.

SOME WILL GO WITHOUT

FERTILIZER OUTLOOK FOR 1947

Limited Supply of Nitrogen Materials Restricts Industry; Prospect of Mixed Product with Minimum Analysis Appears

By DON C. SHARP
Agronomy, 1948

NOT MUCH change from last year is the prospect for 1947 regarding the supply of complete fertilizers.

The continued shortage of nitrogen materials is the principal factor restricting the fertilizer industry. Through April 1, 1947, the amount of nitrogen material for direct application was very limited, agricultural agencies report.

It seems inevitable that many farmers may have to plant their crops without fertilizer this year. In addition, much mixed fertilizer will be prepared with as low an analysis as is legally permissible.

While all the fertilizer needed this year is not on hand, the situation is scarcely a true shortage. Actually, the use of commercial fertilizers in both South Carolina and the United States as a whole has shown a steady and decided increase during the past several years. For instance, the total United States' consumption increased nearly two and one-half times from the 1930-34 average to the year 1945.

Although the year-by-year rate of fertilizer consumption in South Carolina has not increased as uniformly as the national total, the definite trend toward the use of more commercial fertilizer is indicated by the high of 834,985 tons for the 1944-45 period, compared to 672,753 tons for the 1938-39 period.

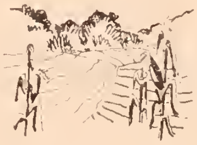
Nitrogen materials, being the limiting and critical factor in fertilizer production, bear close consideration—the situation of nitrogen alone; then its effect on the supply of complete fertilizer are important. Of the total 128,000 tons of nitrogen material available in South Carolina through April 1, 1947, the tonnage of soda was 99,000. Therefore, so far this year there has been relatively little nitrate of soda available in this state.

Some Chilean nitrate has started moving, but it is still rather indefinite how much nitrate of soda can be supplied to South Carolina farmers this year. It is hoped that the situation will improve by the time general crops are ready for side dressing.

Nitrogen in solution form, which is used to ammoniate superphosphate, is relatively plentiful. However, this form of nitrogen can be used in mixtures only, since it contains anhydrous ammonia. Then too, many manufacturers are not equipped to use solutions. There is also a limit from a chemical standpoint to the amount of solution which can be used in mixtures. There was hope for more nitrogen from ordnance plants which are now being operated privately. Such plants are located at Sterlington and at Lake Charles in Louisiana. Granular ammonium nitrate is the product which the former ordnance plants plan to produce. Unfortunately, the difficulties involved in putting these plants into production will probably keep them from being of much assistance before the 1948 fertilizer season.

The shortage of nitrogen materials is due to the three factors of strikes in the United States in coal and transportation, labor troubles in Chile, and much nitrogen being sent to foreign countries for rehabilitation purposes.

Complete fertilizers are in abnormally high demand this year. The supply is then insufficient, although it will be approximately the same as the comparatively high figure of last year. This is about 80 percent above the 1935-39 average. Because of the nitrogen situation, a considerable amount of mixed fertilizer will be used as top dressing. In addition, the demand in the middle west will be heavy. There will be a marked tendency by manufacturers to compound low analysis mixed goods so far as is legally permissible. Even this, however, will probably not spread the supply sufficiently to meet the needs of all farmers.



Farmers should be especially careful this year about proper placement of fertilizer; so that they may obtain maximum results from their perhaps limited supplies. A good job of side placement of fertilizers will sometimes double or more the yields over that of applications in the furrow. Some farmers are not as well equipped as others to practice such placement, but in many cases added effort may be justified this year.

BETWEEN THE

GRADUATE SCHOOL IN OPERATION

The Clemson Graduate School was re-established last September with the offering of Graduate work in the Department of Agricultural Economics and Rural Sociology with an enrollment of five students who are working toward a Master of Science Degree. Under the direction of the Board of Trustees and Dr. R. F. Poole, a Graduate Committee was set up with Dr. F. H. H. Calhoun, Dean of School of Chemistry, as Chairman.

In general, the policies governing the Graduate School here will be the same as those governing graduate schools in similar land-grant colleges. All applicants to the Graduate School must be passed on by the Graduate Committee and those accepted must maintain a "B" average their first semester work.

INTERESTING SUMMER SCHOOL COURSE

Something unusual is in store this summer for those who may be interested in Government Policies and Programs Affecting Agriculture. A one hour per day, six days a week course by that name will be offered under the direction of the Department of Agricultural Economics and Rural Sociology and word has come down to **"Between The Furrows"** that some of the outstanding economists of the country will serve as "guest professors" for short periods during the session. Among those who have already accepted invitations for engagement of about one week are Dr. O. B. Jesness of the University of Minnesota, Dr. W. S. Murray of Iowa State College, and Mr. A. G. Brown of the American Bankers Association.

This course will certainly provide an unusual opportunity for Smith-Hughes Teachers, County Agents, and other agricultural leaders as well as interested students to get the views of some of the nation's best minds on matters of utmost importance to all of use.

SOUTHEASTERN COLLEGE JUDGING MEET

"Between The Furrows" hears that the recent Southeastern Collegiate Livestock Exposition held at Clemson under the sponsorship of the Clemson Animal Husbandry Department was one of the best seen in many years. Prof. E. R. Hauser was director and the Animal Husbandry Club served as assistants. This was the first such exposition since 1942.

Teams from the University of Georgia, University of Florida, University of Tennessee, University of West Virginia, Virginia Polytechnic Institute, and Mississippi State were entered. Clemson being host, did not enter one. The classes were placed in the morning, reasons given in the afternoon and awards made that night.

The winners were announced by Professor Hauser at a Barbecue held at the "Y" Cabin on the Seneca River that night. The University of West Virginia team came first with 3693 points followed by the V.P.I. team with 3644 points. Third place went to the University of Florida. First place in individual score went to Beard of the University of West Virginia, second to Williamson of V.P.I. and third to Hill of the University of Florida. Prof. L. V. Starkey made a brief and entertaining talk in which he expressed the delight of the college in being host to the Exposition.

BUILDING PROGRAM FUNDS VOTED

An appropriation of $1,300,000 by the South Carolina General Assembly for building purposes at Clemson is expected to go into a new central heating plant, a chemistry building, and a hospital. Due to high building costs and lack of building materials, it is not known when work will start. However, an enlargement of the College YMCA building to take care of the need of more club rooms, lounging space, and additional moving picture facilities, is expected to begin in the near future.

FURROWS

ALPHA ZETA NEWS

Ten new members were recently initiated into Alpha Zeta, national honorary agricultural fraternity.

The new members are J. F. Chaplin of Myrtle Beach, D. B. Rosenkrans, Jr., of Clemson, H. B. Kay of Easley, S. L. Hay of Johns Island, W. M. Loupo of Lake City, E. A. Lindenburg of Charleston, S. E. McGregor of Lykesland, L. A. McInnis of Clio, D. C. Sharp of Allendale, and H. D. Taylor of Greenville.

H. L. Parr has been Chancelor of Alpha Zeta during the past year.

COLLINGS HEADS ACADEMY OF SCIENCE

Dr. Gilbeart H. Collings, Professor of Soils at Clemson, was elected President of the South Carolina Academy of Science at the recent annual meeting in Columbia.

Appearing on the program at this meeting Dr. Collings presented to the Chemical Section his paper entitled, "Is a Two-to-One Agriculture a Possibility in South Carolina?", in which he discussed the characteristics of various soil minerals.

The 1948 annual meeting of the Academy will be held at Clemson, Dr. Collings stated.

NEW TRUSTEES NAMED

In accordance with the ban on dual office holding by public officials in South Carolina, the General Assembly recently elected the following men to fill vacancies left open on the Clemson Board of Trustees:

J. Franklin McLaurin of Marlboro county to succeed Senator Edgar Brown of Barnwell; Benjamin T. Leppard of Greenville to succeed Representative W. Clyde Graham of Florence and T. Wilbur Thornhill of Charleston to succeed Senator James P. Mozingo, III, of Darlington.

POULTRY AND BOTANY MAJORS ADDED

In a revision of the Agricultural Curricula in September 1946, majors in Poultry and Botany were established along with a two-year Pre-Forestry course. These new majors bring a total of eight majors offered in the School of Agriculture.

Both of the new majors have a curricula which will offer broad and excellent training in these particular fields. Each department is well staffed and equipped to give students an excellent course. With the large demand for men trained in these fields, it is expected that these two new majors will attract many students.

A study of the Clemson Agricultural Curricula and the curricula of other similar schools reveals that a Clemson graduate can rest assured that he will be among the best trained Agricultural gradates in the United States. Under the new curricula, he receives a broad knowledge of all major fields his freshman and sophomore years and a specialized knowledge his junior and senior years.

SHARP HEADS KAPPA ALPHA SIGMA

D. C. Sharp of Allendale was recently elected President of Kappa Alpha Sigma, Clemson Student Chapter of The American Society of Agronomy.

Others elected were R. C. DuBose of Lamar, Vice-President; D. B. Rosenkrans, Jr., of Clemson, Secretary-Treasurer; and B. N. Kelly of Union, Historian.

BOZARD HEADS AG. ECONOMICS SOCIETY

At a recent meeting of the Agricultural Economics Society, James D. Bozard of Orangeburg was elected President for the coming year. Lamar Judy was elected Vice President and Gilbert Hardee was re-elected Secretary-Treasurer.

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Agrarian Philosophy

By

The Editor

Starting Again

It was with much pleasure that the present staff began the task of re-establishing The AGRARIAN once more as the official student publication of the School of Agriculture. Although we were lacking in experience, we have tried to make up for this short coming with enthusiasm.

The AGRARIAN'S purpose is to offer to the students, faculty, and other interested persons, a journal through which they might be able to offer articles of interest about Agriculture and the work being done at Clemson College. The publication is one primarily for students, operated uncensored by the students for the benefits of the students and Clemson College.

To the students of the School of Agriculture, the staff asks that you remember that this magazine is yours. Only through your active support and help will it be able to continue. The staff at all times stands open to receive constructive criticism and help from anyone who is sincerely interested in the magazine.

The staff is aware of the fact that had it not been for the cooperation of the faculty and administration plus the patronage of our advertisers, this issue or the issues to follow would not have been possible. To them we offer our sincere appreciation for all of their many efforts.

To the staff which will follow us we ask that you not forget in your policies that every side has two questions and that nothing is gained but defeat in compromise with principles. We leave to you the question of setting up a specific editorial policy for The AGRARIAN. Surely success will follow you as did our predecessors who won high honors and recognition if you will follow that guiding principle, "Seek the truth and the truth shall make you free".

Student Unity

Much has been said recently about the lack of unity among the students of Agriculture on the Clemson campus. It is true, however, that practically all of the departments in the School of Agriculture have departmental clubs or societies organized and working as they should. There is still lacking an organization which unifies the students of agriculture as a group.

The AGRARIAN offers the following proposal with the hope that some interested group of students or some organizations will attempt to put them into reality. The AGRARIAN proposes the establishment of an Inter-Departmental Student Committee or something similar to foster a more unified feeling of spirit and of purpose among the students of agriculture. This might be accomplished by the following plan of action:

1. Monthly chapel meetings of all agricultural students at which time outstanding leaders in the field of agriculture would be presented in interesting and constructively designed programs.

2. Bi-monthly student-faculty social functions which would enable both students and faculty to become better acquainted with each other.

3. Exchange programs between various departmental clubs which would give students a broader view of the work carried on by each department.

The AGRARIAN extends its full backing and support to any group who will work for these things.

Agriculture is a specialized field, yet the fact remains that cooperation between all groups is a must if a successful and prosperous agriculture is to result from the work of the specialist.

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A FAVORITE STORY

METAMORPHOSIS—A WONDER OF NATURE

Professor Franklin Sherman Writes About What He Considers to Be Greatest Wonder in Animal World

IT HAS ALWAYS seemed to me that **metamorphosis** is one of the wonders of the Animal Kingdom: How an animal may hatch from an egg an entirely different-appearing creature from what it is when it gets grown, adult.

A common butterfly will lay eggs and those eggs hatch not into young butterflies, but into some sort of **caterpillar** of an entirely different appearance. This caterpillar will feed on some sort of vegetation and grow larger and larger but still bearing no resemblance to the adult butterfly that laid the eggs. Finally this caterpillar changes into a **pupa** in which it looks neither like the adult nor the larva, but it does have an outline of the legs and wings and antennae of the adult; as a pupa it does not move about nor take food, it is merely a resting or transforming stage of life. Finally the shell of this pupa is ruptured and out crawls an adult butterfly exactly like the one that laid the eggs in the first place. At first the young butterfly is limp and wet, but by fanning the wings gently they become fully expanded, and the butterfly may fly into the world and live its normal adult life.

PROF. FRANKLIN SHERMAN
Professor of Entomology

By LOUIE H. SENN
Entomology, 1947

Everyone connected with Professor Franklin Sherman, either as a student or otherwise, cherishes his gentle philosophy of life and his associations with nature.

In a recent conversation pertaining to nature, and particularly the wonders of spring, Mr. Sherman contributed the accompanying article on Metamorphosis. Mr. Sherman then started talking in that tone so familiar to those of us who know him so well. When he attains this mood, and starts to smoke his ever-present pipe, one can be assured of an interesting oration.

During this conversation Mr. Sherman talked about his college days and his life as an entomologist. Among his many distinctions in the field of entomology is past president of The American Association of Economic Entomology.

Mr. Sherman underwent a serious operation last fall, and his recovery has been slow. However with the arrival of warm weather, he will again be seen walking around the campus with his collecting net over his shoulder. It is hard to keep a good man down.

Rumors say "Pop" is planning to retire soon, but don't believe a word of it; the Chief is improving rapidly and is raring to go. Nicknames for Professor Sherman flow freely from everyone connected with him but all of them, "Pop", "Chief", or just plain Professor Sherman lead to one universal meaning, "The grand Old Man of the Agricultural Building".

I suppose it is all tied in with the way insects have developed during the long course of the earth's history in ancient times I suppose the changes were more simple and direct, but as time dragged on, it became necessary for them to change from stage to stage until now we have it as we see, the four stages of **egg, larva, pupa** and **adult**;—but it has always been a marvel to me. I wonder whether butterflies will **always** develop like that, or whether Mother Nature will in the course of time introduce some new and as yet unknown twist or turn in the metamorphosis of insects.

There must be some advantage in this complete metamorphosis because about sixty to eighty per cent of all insects develop in this way while only about twenty to forty per cent stick to the simpler form of development of the grasshopper where the egg hatches into a young insect that we can recognize as a young grasshopper. That is more like the higher animals and more like what we might expect. Yet it is only the minority of insects which develop in this way.

Complete metamorphosis seems to have won the day—at least for the present age in world history; perhaps ten million years hence it will be some different story.

EARLY SWEET POTATO HISTORY

The New World's Major Contribution to Man's Food Supply Has Spread Over Entire World

By J. C. HERLONG
Horticulture, 1947

THE SWEET POTATO, originally of South and Central America, had developed many varieties at the time of its discovery by Columbus. Historical mention may be found of **Batatas** being cultivated in Hondurus in 1514, at which time there were nine named varieties. One writer in the year 1526 mentioned sweet potatoes in the West Indies and stated that they had often been carried to Spain. He himself had carried sweet potatoes to Avila, in Castile.

The potato is referred to as **Apichu** of four or five different colors in Peru. Colors mentioned were red, yellow, white and brown. The **Camote** of Yucatan, called in the islands **Axi** and **Batatas,** was mentioned in accounts of the fourth voyage of Columbus. Chanca, physician of the fleet of Columbus, in a letter dated 1494, referred to **Ages** as among the products of Hispaniola.

Red, purple, and white sweet potatoes are mentioned as having been cultivated in Spain. Notes refer to their attempted culture in Belgium. These beginnings and attempts to grow sweet potatoes in Europe took place between 1556 and 1576. After 1576, mention of sweet potatoes in the early botanies was frequent. Sweet potato culture in Virginia was noted before 1650. In 1750 there were at least 13 sorts known in the Barbados.

The sweet potato is mentioned as growing in the garden of a writer in England in 1597. The same year it was reported growing in India, Barbarie, Spain and other comparatively hot regions. Sweet potato culture was attempted in Italy at that time, but with little success. The root reached St. Thomas, off the African Coast, before 1563. A Portuguese pilot stated that the root, which was called **Batata** by the Indians of Hispaniola, was named **Igname** at St. Thomas, where it was one of the most essential articles of food. Spaniards carried the sweet potato to Manila and the Moluccas, and from there the Portuguese distributed it through the Indian Archipeligo. It was cultivated in Hindustan and also in Batavia by 1665. The root was one of the native vegetables in common cultivation in all parts of India, the plants producing pink flowers with a purple eye.

Seed was never produced by the plant in China, according to an early reference. This is the first mention of the possible means of propagation used in the early days. Whether it was common practice in tropical countries to collect the seed and reproduce plants by planting is not known. However, most references as to the places the plant was first found were in the tropical countries, where the plant may have set seed.

Thirty-three varieties were mentioned as growing in the Hawaiian Islands in early days. There is also reference to potatoes growing in New Zealand, Tahiti and the Fiji Islands. In New Zealand there is a tradition among the natives that the sweet potato was first brought to the island in canoes made of pieces of wood sewed together.

In Virginia, sweet potatoes were one of the early cultivated crops, growing there in 1648 and perhaps earlier. Jefferson in 1781 mentioned the cultivation of this crop. The sweet potato was introduced generally through New England in 1764, and is said to have come into general use. Early writers stated that sweet potatoes of excellent quality could be grown around Boston, but there have never been planting of much agricultural importance in that region. Plantations of sweet potatoes were observed about indian villages in the South in the late 1700's.

It is well to note the distinction between the sweet potato and other plants with edible roots. Many plants grown today have an enlarged and edible root, but are not sweet potatoes.

Yam is the general name given a group of plants found in widely separated parts of the world. Such yams sometimes reach the enormous size of 50 to 80 pounds. **Dioscorea Alata,** or the white yam, is cultivated in the tropics throughout the world. This yam originated in Southern India, and spread to Africa and America, where the name, "yam" was derived by the Negroes. In the Negro dialect of Guinea, the word "yam" means "to eat". While the name "yam" is often given to the sweet potato, this is an error according to Sturtevant, whose writings are regarded as authoritative.

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FOR THE TRACTOR - - -

Gasoline vs. Kerosene

Gasoline Is Favored As Tractor Fuel With New Tax Refund Law in Operation

By E. B. ROGERS
Agricultural Engineering, 1948

A QUESTION frequently asked by farmers since the end of the war is whether a tractor or other power equipment can be operated as cheaply with gasoline as with kerosene or tractor distillate. Many things must be considered before this question can be answered correctly.

The difference between the two fuels is first considered. Both are the products of fractional distillation of crude oil, further processed to remove gum and other impurities harmful to the engine.

Gasoline differs from kerosene or tractor distillate, however, by being further refined. Treatment of gasoline with chemicals which give it a high anti-knock quality is of particular importance. This quality enables the fuel to be more highly compressed without knocking, and is usually referred to as the "Octane Rating". Thus, gasoline has a comparatively high octane rating, while this rating is low for kerosene and distillates.

What actually happens to the fuel inside the engine should be understood. From the tank, fuel is drawn through the carburetor, where it is vaporized and mixed with air in the proper proportion to give a highly combustible mixture. It is then drawn into the cylinder of the engine. Movement of the mixture is due to the decrease in pressure inside the cylinder when the piston goes down on the intake stroke.

Inside the cylinder, the combustible mixture is compressed on the upward or compression stroke until the piston reaches the top of the stroke. Ignition then occurs, burning the mixture, and expansion, due to heat, forces the piston down on the power stroke.

It is on the power stroke that useful power is obtained from the fuel.

The compression and power strokes are of particular interest. If maximum power is to be obtained from an engine, the fuel-air mixture should be compressed to the highest possible pressure. This pressure is determined by the compression ratio which is the ratio of the cubical size of the combustion chamber when the piston is at the bottom of its stroke, to the cubical size when the piston is at the top.

Gasoline must be used in a high compression engine. Kerosene and distillates, because of their low octane rating, will break down and ignite prematurely under high compression, with knocking and loss of power as the result.

TAX REFUND

Much prejudice against the use of gasoline has developed because of its higher price. A law is now in effect in South Carolina, however, which refunds to farmers most of the state tax on gasoline used for farm production. The law states in part that five cents of the six cents state tax will be refunded to any person who shall purchase and use gasoline in operating farm tractors and other power machinery used exclusively for farm operations.

Any person desiring to purchase gasoline for farm use should establish a basis for refund of tax by filing with the South Carolina Tax Commision an information blank, which may be obtained from the Commission, containing a detailed description of the machinery in which the tax refund gasoline is to be used. The blank should also show an estimate of the amount of tax refund fuel to be used during the succeeding year.

High maintenance and repair bills are the only solution to many problems in the use of kerosene and distillates. The necessarily low compression engine produces less power for a given size. These fuels necessitate running the engine at a high temperature to completely burn the fuel-air mixture. Complete burning of the mixture when kerosene or distillates is used is not assured; not even by operating the engine at a maximum safe temperature. Unburned parts of the mixture go to three places, at all of which loss in power results.

Part of the unburned fuel mixture passes out the exhaust.

Advantages of the extra power obtained by the use of a high compression engine and gasoline are many. Work can be done in less time, than helping to maintain the sometimes critical farm schedules, and economic savings made. These points will not be overlooked by the wise farmer.

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DEAN COOPER WRITES

AGRICULTURE IS one of the largest industries in the country. When the efforts of other enterprises related to the production and distribution of agricultural commodities are added to the agricultural program, the combined forces represent the efforts of a majority of our people. The utilization of scientific information in the production, processing and distribution of agricultural commodities creates a heavy demand for scientifically trained leadership in agriculture.

The production of agricultural commodities is largely an individual or family enterprise. The large number of producer units involved and the relatively low production per unit makes it impossible to utilize scientific information and develop technical skills to the same extent as is true in many of the large centralized industrial plants.

Realizing the diversity of enterprises and the significance of a prosperous and permanent agricultural program in any stable social, economic and political system, our national government has attempted to provide research and educational services for the diverse agricultural enterprises somewhat comparable to the services which determine the production efficiency in many of the large centralized industrial organizations.

The national government created the Land-Grant Colleges and Universities in each state to promote education in agricultural and mechanical arts. In order to develop a body of scientific information pertaining to agriculture, the Agricultural Experiment Stations were established in 1887. During the last 60 years the Agricultural Station research program has been enlarged and expanded to cover practically all phases of agriculture.

The Agricultural Extension Service was created to take the results of the research activities to the farmers through the County Agricultural Agents and the Home Demonstration Agents. Vocational Agricultural Education in the public school makes the scientific information pertaining to agriculture available to the public school student. The Soil Conservation Service has been organized to conserve our soil resources, and is employing a large number of men trained in soil science.

The present demand for scientifically trained personnel in the field of college teaching, experiment station research and for service as county agents, vocational agricultural teachers, soil conservation service specialists and in related agricultural activities has created a serious shortage in agricultural scientists. All of the agricultural colleges are enlarging their agricultural, educational and research facilities, but it will require a number of years to train all the agriculural scientists needed in our agricultural programs.

CLEMSON STUDIES OPPORTUNITIES IN LIVESTOCK

(Continued from page six)

of proved sires and strict selection. Very recently a Hereford bull, Battle Domino 11th, sire of the reserve champion female of the 1944 National Polled Hereford Show in Atlanta was purchased from the Welsh Brothers in Kansas. There are now 83 Hereford cows and calves in the department herd. The majority of these animals are related to Mossy Plato 26th.

An Angus herd has recently been started at Clemson with a bull and five heifers purchased at the Brays Island Plantation of Yemassee for a foundation. Two other females have been added which were purchased at the 1947 South Carolina Angus Sale held in Columbia.

The Shorthorn herd is small but progress is being made to increase the number of animals and also the quality of the herd.

The sheep flock consists of Hampshires, Dorsets, and Southdowns. Work is being carried on to determine the breed most suited for this state. Clemson has much work on internal parasites of sheep and this has been carried on with much success.

Due to the construction of the G.I. houses at Clemson in and around the area formerly occupied by the hog lots of Goodman Field, the swine herd has been cut down to an all time low. As soon as the hog plant on the Ravenel Place west of the Seneca River is completed, the project will be again enlarged to include Berkshires, Hampshires, Poland Chinas, and Duroc Jerseys.

All of the previous projects, new buildings, and pasture improvement work is being done to give students in agriculture and farmers of South Carolina a wider and more up to date knowledge of livestock production in the state. With the new herds and flocks, the practical application of text book theories may be more easily demonstrated. The pasture improvement work can be seen and the students have a chance to draw their own conclusions from the work.

Among the practical courses offered for the student interested in Animal Husbandry are the courses in Feeds and Feeding, Types and Breeds of Livestock, Pork Production, Beef Production, Horse and Sheep Production, Animal Breeding, Livestock Judging, Farm Meats, and many other courses. Most of the courses offer both theoretical study along with laboratory work so that the student may learn the fundamentals of the various courses and then actually see the projects on the model farm. The courses offered at Clemson are not limited in scope to South Carolina but give information from other state experiment stations and colleges. This is correlated with data from the Clemson Agricultural Experiment Station.

Anyone who has traveled through the southeastern section of the United States has seen the red streams and rivers so common to our area. We know that this red color is being washed from the southern farms due in part to the poor cropping systems practiced. Every farmer that establishes a permanent pasture is making southern agriculture more permanent.

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ARTIFICIAL INSEMINATION

(Continued from page nine)

Breeders' Association. Mr. J. W. Kelly, a Clemson graduate in dairying, is the technician in charge. Another association was started in Greenville county in June, 1945, in cooperation with the Greenville Cooperative Breeders' Association. Mr. H. H. Hanna, a Clemson graduate in dairying, is the technician in charge. This year, Anderson, Chester, and York counties have adopted this program and will start operation in the early summer. Eventually all the county organizations will be organized into a state federated cooperative.

The semen is collected at Clemson on Monday and Thursday of each week and shipped to the association. The semen is shipped in thermos bottles which are carried in cork-insulated packers fitted with pre-cooled brine pads. Using this shipping method, the temperature of 35 to 40 degrees Fahrenheit is maintained in the thermos bottles during the trip from Clemson to the county association headquarters.

Approximately 2,000 South Carolina cows are now being inseminated annually by this program. After the other three counties get started, there should be approximately 5,000 cows bred by this method in South Carolina each year.

One should not think of artificial insemination as an emergency measure for "getting cows in calf". It is not a cure-all for breeding ills; in fact, there may be some failures, as in natural breeding, but the advantages of the use of superior germ plasm are sufficient to offset many failures.

Cooperative artificial breeding units make it possible for the small owner to use a much better sire than he could hope to buy because his herd is not large enough to justify the purchase of an outstanding bull. Artificial insemination is driving from the scene the scrub bull which has been responsible largely for the low production record of the average American cow.

ECONOMISTS IN AGRICULTURE

(Continued from page 11)

in the farm enterprise.

The agricultural economist must be able to help the farmer answer this question: "Will tomorrow's income be sufficient to pay off what I borrow on my farm today?" This is quite an important question and one which must not be skipped over lightly. As an example of just how important a question this is, it is pointed out that in 1919, to pay off $1000 of debt, it took only 2033 pounds of flue-cured tobacco or six bales of cotton, whereas in 1932 to pay off a similar debt it took 8,621 pounds of flue-cured tobacco or 31 bales of cotton. We can see from these figures just how important it is to the farmer to have qualified counsel before he takes on such a financial burden as farm ownership if he must borrow money to assume this burden. For a person who has the money to pay for a farm outright, it is important to him to know the answer to this important question, too, so that he may not find a large investment shrunk to a mere fraction of its purchase value.

The banking interests have recently been giving much thought to the idea of employing agricultural economists to assist them in making and servicing farm loans. They are of the opinion that a man trained in agricultural economics is better qualified to give advice as to the worth of the farm and the likelihood of loss through backing a farm enterprise than is a man with a background in banking or accounting. We are, indeed, proud of this new recognition of the efforts of the agricultural economist.

A third branch of agricultural economics that is quite important in some section of the country is work with farmers' cooperatives. That there is a definite need for a cooperative is the first thing that must be determined before even the preliminary steps in organizing a cooperative are taken. It has been found that unless there is a definite economic need, a cooperative is almost always foredoomed to failure. When there is a need for a cooperative, the agricultural economist is in a position to render valuable assistance in its organization and operation.

A phase of agricultural economics in which Clemson has been doing a great deal of research is that of economic surveys. There have been a great many agricultural-industrial surveys made of various sections of South Carolina. These surveys have revealed quite a few startling facts about the economic possibilities and limitations of the communities surveyed, and have helped point the way toward a more prosperous economy for these communities. Research on land values has been very helpful as have other studies in land ownership and tenacy, farm taxation, and the economic and social impact of farm mechanization.

The compilation of agricultural statistics is another duty that agricultural economists perform. Besides a knowledge of agriculture and economics, the agricultural statistician must also have a thorough knowledge of statistical methods.

The Agricultural Economics Department at Clemson also assists other departments and agencies with surveys and tabulations of data in their departments. There is available in the department a complete punch-card tabulation outfit and the services of skilled operators.

There has beeen, and still is, in some quarters, concern only about how much can be gouged from the soil with no concern as to its future productivity. A study of the social and economic effects of this and countless other agricultural policies and methods of production, and counsel on economic matters pertaining to agriculture are the fields of the agricultural economist. His means of obtaining and analyzing his data are undergoing constant change and improvement, and become more and more efficient as time passes.

Dr. Wade Stackhouse and Borden Company Present College With Student Aid Funds

THE ANNOUNCEMENT of a new scholarship and of a new loan fund established for the benefit of students in the School of Agriculture was announced recently by Dean H. P. Cooper. The scholarship is for undergraduate work at Clemson and the loan fund serves as an aid to ambitious Clemson graduates who give promise of becoming leaders in research.

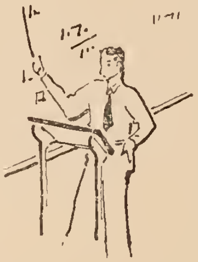
The Borden Company Foundation, Inc., has included Clemson with twenty-three other colleges and universities as suitable institutions in which to establish Borden Agricultural Scholarship Awards. Their purpose is to stimulate and recognize scholastic achievement by undergraduate students in agriculture. The award is to be in the amount of three hundred dollars annually for a five-year period. A Borden Scholarship Committee composed of Professors J. P. LaMaster and B. E. Goodale has been appointed to make the awards under the following rules:

1. All senior students in the School of Agriculture of Clemson Agricultural College who have included in their curricula two or more dairy subjects shall be eligible for the Borden Agricultural Scholarship Award. The award shall be presented to that eligible student who has achieved the highest average grade of all similarly eligible students in all college work preceding their senior year. The amount of the award shall be pair to the recipient during the first semester of his senior year.

2. In the event that the committee finds it inappropriate to make the award in any one year, the award may be deferred to a further year. Only one award, however, will be made during any one year.

3. Transfer students with two semesters work at Clemson will be considered. All transferred credits will be evaluated in combination with Clemson credits.

The first one of these awards was made on December 2, 1946, to J. W. Dantzler, a senior student, majoring in Dairying, with an accumulated grade point ratio of 4.83. The students that were eligible for consideration for this first scholarship were: A. E. Bobrow, T. S. Bowers, J. W. Dantzler, M. B. Edens, J. C. Hiers, W. F. Irwin and B. J. Stanek.



STACKHOUSE LOAN FUND

The Dr. Wade Stackhouse Loan Fund is an endowment in the form of a gift from Dr. Wade Stackhouse, of Dillon. His father, the late Mr. Hugh Milton Stackhouse who was at one time a trustee of Clemson, served as Head of the Fertilizer Inspection and Analysis Department at Clemson for 26 years. Dr. Wade Stackhouse is a prominent retired physician, and a noted cattle breeder and farmer. He is greatly interested in more and better research for South Carolina. "It is my desire," Dr. Stackhouse said, "to see more Clemson men win national recognition, and I hope my donation may induce people of wealth to give Clemson College more money for specilized training."

The fund is designed to furnish assistance through loans to outstanding Clemson graduates who give promise of becoming leaders in research. Loans from this fund shall be available to students who desire to undertake graduate work in Agriculture, Chemistry, Engineering, and other similar fields that the Trustees of the Fund may authorize. It is hoped that upon completion of their training the beneficiaries will spend at least five years in South Carolina, if possible.

The Trustees of the Fund are: The President of Clemson College, Dr. R. F. Poole; The Director of the Clemson Dairy Department, Professor J. P. LaMaster; or their successors in office. Each year the Trustees of the Fund shall select one or more outstanding graduates who may be eligible to receive a loan from this fund. The beneficiaries shall have a period of five years after completion of their graduate work in which to repay the loan at an interest rate of 4 per cent.

Under the terms of this fund there has been one loan which was made to Gordon Goodale, a Chemistry 1945 Clemson graduate. He took his graduate work at the University of North Carolina and received his M.S. degree in Chemistry in December, 1946. He is now teaching at Salem College in Winston Salem, N. C.

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(Continued from page four)

er dissolve four ounces of washing soda (crystallized sodium carbonate) and eight ounces of common salt in one-half gallon of water. Now pour the salt-soda solution slowly into the alum solution while stirring vigorously. This makes your tanning solution. This combined solution should then be mixed with enough corn meal, rye meal or wheat flour to make a fairly thick paste.

Now tack the cleaned, damp skin on a board or any flat horizonal surface, flesh side up, and coat it about one eighth inch thick with the tanning paste. Cover the coated skin lightly with papers or cloth to retard evaporation and let stand for twenty-four hours.

The next day scrape off the first coat of paste and apply another one in the same manner, and at intervals of a day repeat the process until three or four applications have been applied, depending upon the thickness of the skin. Leave the last coat of paste on the skin for three or four days then scrape off and wash the skin in a solution made by dissolving about one ounce of borax in a gallon of water. Follow this by rinsing in plain water and then squeeze out the excess water with your hands.

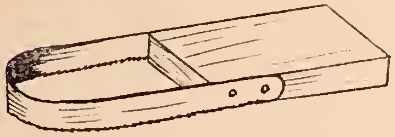

Figure 2

Now lay the skin out flat and apply a coat of neatsfoot oil to the flesh side. When it becomes nearly dry but is still slightly damp and flexible take it down and work it thoroughly. There are several ways to do this: (1) Pull and stretch the skin between your hands; (2) Pull it back and forth across the back of a chair in a shoe shining motion; (3) Roll it up, flesh side out and pull it back and forth through a looped rope. This is one of the most important steps in tanning and much of the success in obtaining a soft, pliable pelt depends upon this repeated working. In fact, anything you can do to keep the skin in motion while it is drying will make it just that much softer. It must be worked while drying, however, not after it has dried.

You should now have a nice, soft, well-tanned skin, but if it should still be a little hard in spots the hard places may be dampened again and reworked while drying the same as before. If the flesh side is a little rough or soiled after drying it should be sanded with medium or coarse sand paper.

Another Salt-Alum Method

This is one of the oldest and simplest methods of tanning. It is suitable for both light and heavy hides and produces a strong and durable leather.

The skin should be cleaned and fleshed as already described, then put the entire skin into a solution made by dissolving one pound of alum and one pound of salt in four gallons of water, being sure that all parts are covered. Stir the solution at least twice a day and churn the skin up and down a few times to enable all parts of the pelt to come in contact with the liquid. Examine the hide after a day or two to see if there are any hard, flinty spots. If there are any such spots place the hide over the beam and shave the hard places down with a sharp knife until they are soft as the surrounding areas.

Small skins will tan in about two days in this solution and it will of course take longer for heavy hides. It usually requires about a week for a medium size deer hide. Be sure to leave the skins in long enough though. It will not hurt to leave them in several days longer than is actually necssary. The skins can be tested from time to time by cutting a small slit in the thickest part of the skin. If the leather is white all the way through it is tanned, but if it still appears raw on the inside it should be put back in the liquid a day or two longer.

When the skin is tanned wash it thoroughly in plain water, then in the borax water and finish it exactly as described in the previous method. If it should be a heavier hide, however, apply a more liberal coat of oil.

The Salt-Acid Method

The salt-acid method of tanning is exactly the same as the one just described except the tanning solution is made by dissolving two pounds of salt and one ounce of concentrated sulfuric acid (by weight) in two gallons of water. This solution should be kept in stone jars or wooden barrels, never in a metal container since the acid would attack the metal. Always be extremely careful when using such strong chemicals as sulfuric acid. Avoid getting the acid on the hands or clothing, and when mixing the solution always pour the acid slowly into the water. Never pour the water over the acid.

This method of tanning produces nice, soft leather but it is not so durable as that obtained by the previous methods.

Making Buckskin

Real buckskin is made from the skins of deer, though some other hides are sometimes called buckskin. To make this product the skin should be fleshed as already described and then thoroughly relaxed in plain water. While it is still wet and soft put it in a lime water solution to loosen the hair. This solution is made by adding about a pint of ordinary builders lime (slaked lime) to each gallon of water used. If you can secure hard wood ashes a pint of this to each pint of lime will hasten the loosening of the hair, or a very small amount of lye may be added in place of the ashes. Leave the skin in this solution for a few days or until the hair becomes very loose. The skin should be stirred around at least twice a day so the lime can reach all parts of the skin. When the hair is very loose lay the skin over the beam and scrape the hair off with a dull knife or block of wood.

It is now necessary to "kill" the lime so that it does not continue to work and weaken the hide. To do this soak the skin in plain water for an hour or two, squeezing it out from time to time. Then soak the skin in a mixture of one and a half ounces of lactic acid to four gallons of water. The hide should be soaked and rinsed in this for an hour or more and then rinsed in plain water. If you are unable to get the lactic acid the lime can be removed by several thorough washings in soapy water followed by rinsings in plain water, but this is a more laborious process and must be done very thoroughly in order to remove every trace of the lime.

After this the hide may be tanned by one of the processes already given.

Review of Current Agricultural Publications

Given below are short reviews of a few of the many South Carolina Experiment Station and Clemson College bulletins and circulars. Copies of these bulletins and circulars may be obtained free of charge by writing to the Bulletin Room, Clemson College Library, Clemson College, S. C.

Extension Service Circulars

291—Tobacco Plant Production in South Carolina. A discussion of tobacco plant production suitable for South Carolina. Would be of interest to all tobacco farmers and those connected with tobacco production in the state.

292—Small Grains in South Carolina. This publication gives recommendations for varieties of seed to use, soil preparation, rates of seeding, etc. for all small grains planted in South Carolina. It lists favorable rotations, insects and diseases control along with weed control for each of the small grains individually. It deals also with the various uses of the grains, as the winter cover, grazing crops, and gives a variety of feed mixtures for livestock and poultry. Would be of interest to all farmers, particularly those who grow their own feed for poultry and livestock feed.

294—The Agricultural Outlook for South Carolina 1947. Outlook reports for transportation, farm machinery, fertilizers, lumber, and land prices. Principal Agricultural crops are discussed as to such facts as to production, prices, and estimated demand. Would be of interest to all who are in anyway connected with Agriculture. Co-op organizations along with Bankers, newspaper editors, and all Agricultural workers should have a copy of this publication.

295—The 1946 Cotton Contest. Information given concerning the Cotton Contest to be held in the year 1947. Results of the 1946 contest such as varieties used, yields, winners, and etc. are given. All farmers who entered the contest last year and all who plan to enter this year should have a copy.

296—Using "Triple-A" Tools for Better Farming. A discussion of 19 soil building practices authorized by the AAA. Also specifications, payments by the government, and advantages and disadvantages of each practice. Every farmer should have a copy plus other who guide and aid farmers.

Experiment Station Bulletins

71—Freezing Preservation of Food Products. A discussion of the freezing of fruits, vegetables, and poultry. Recommended varieties, adaptability for freezing, and types of containers to use for each of the various vegetables and fruits. A must for all who own home freezing units. Freezer-locker plants should have a supply to give to customers. Also of interest to those considering using this method of food preservation.

72—Postwar Employment Opportunities in an Agricultural Community. Results of a survey of the Hollywood community in Saluda County by the State Department of Education and the Department of Agricultural Economics and Rural Sociology at Clemson. Deals with opportunities for employment during the post work period and the number of persons in temporary work and military service who will return to farm. Of interest to County Labor Assistants, returning soldiers, and high school and college youth who plan to return to the farm.

Experiment Station Bulletins

362—Cotton Ginning Equipment and its Utilization in South Carolina. A discussion of the processing of agricultural products. Data on cotton production, the number and size of cotton gins and the use of certain types of ginning equipment. The change which has occurred in South Carolina is also discussed. An excellent analysis of the physical plants of South Carolina's ginning industry as to kind, age, amount of ginning equipment plus the relationships between these factors and the volume of ginning done by individual gins. Of interest to all ginners, cotton farmers, cotton buyers, and others connected with cotton production.

364—Sweet Potato Production Possibilities in South Carolina. A discussion of the relative productivity of sweet potatoes on different soils commonly found in South Carolina. Labor requirements for Sweet Potato production plus relative returns on the crops in comparison with other money crops in South Carolina. Useful to County Agents and those interested in Sweet Potato production.

366—Inspection and Analysis of Commercial Fertilizers. A report by the head of the Fertilizer Inspection and Analysis Department. Gives comparisons of different fertilizers that were analyzed as to nutrients plus other information. Useful to all fertilizer dealers and to ALL who must buy commercial fertilizer.

DR. R. F. POOLE

(Continued from page 10)

South Carolina despite the fact that peaches of greater quality can be canned and frozen from home grown varieties. Also, milk and dairy products are imported when highest quality butter, cheese, and milk could be produced in this state. The branch, creek, and river bottom lands can be transformed from briar and scrub growth into grass and pasture lands as a means of abundantly supplying these products.

The second problem is finding means of convincing poor farmers of the advantages of applying approved practices. There is much evidence and demonstration of poor practices throughout the state that any farmer, regardless of his financial status, could correct. Improving the soil, use of good seed, and proper fertilizer, diversification values, good and well fed animals are matters that must be understood and practiced by the farmer of both large and small acreage alike if the state is to maintain progress and the farmer is to obtain a more satisfactory livelihood. Great improvement has been shown by the small farmer class in recent years and it may be that further education will finally be the solution.

We must visualize the picture of South Carolina as a continuous and progressive state. We understand and comprehend the values essential to obtaining and maintaining progressiveness. Therefore, we must solve the problems not only of the farmer but those of industries that absorb the products of the farm to the end that production and marketing of the products of the forest and farm may return to South Carolina their full worth.

—R. F. POOLE, President

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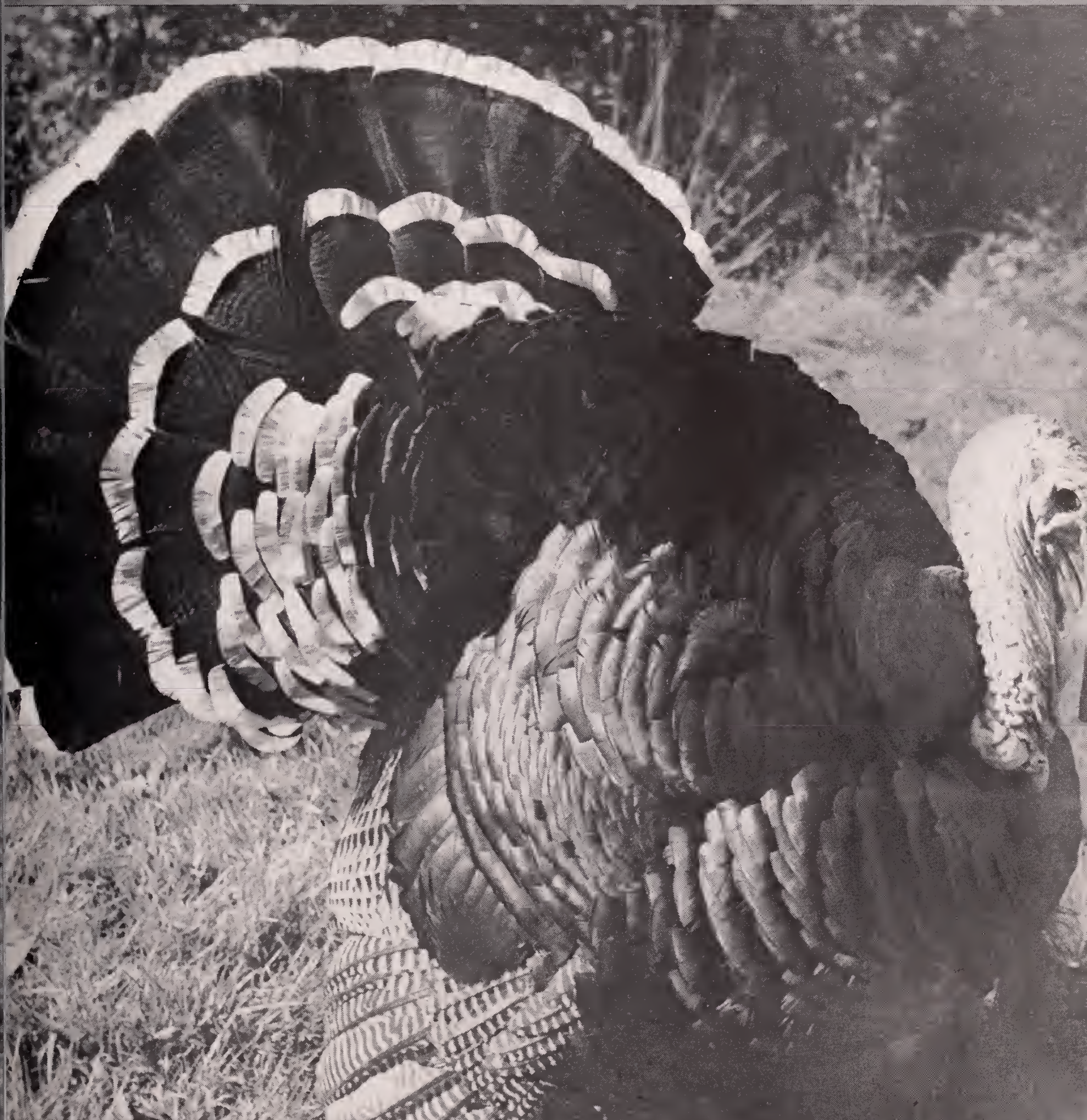
The Agrarian

OFFICIAL STUDENT PUBLICATION



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The Agrarian

OFFICIAL STUDENT PUBLICATION

VOLUME 7 THE CLEMSON AGRICULTURAL COLLEGE NUMBER 1

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COVER—Tom struts his last before gracing the Thanksgiving table. Photo—Courtesy, The Turkey World Magazine.

NOTE — Technical Editorial courtesy the Master Gardener.

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SEVENTEEN THOUSAND DOLLARS from 50 acres of single cross hybrid seed corn! That was one of the accomplishments last year of Champion Farmer John J. Gannon and his father, William P. Gannon, on their 785-acre farm near Valeria, Iowa. Hog sales totalled over 400 head. In a recent month, 16 purebred Guernsey cows, three of them dry, returned $504.78 over feed costs. Seventy head of purebred Aberdeen-Angus cows, and their calves, provide a profitable outlet for roughage. So does a flock of sheep. The Gannons bale 7000 bales of hay annually. Careful pasture management, manure and commercial fertilizers, and a soil conservation program keep the farm highly productive. For economy and efficiency in operating their farm equipment, Champion Farmer Gannon has found it pays to depend on Firestone tires. When he and his father buy new tractors, they specify Firestone Champion Ground Grips. In the photograph, Sheila Ann Gannon with her grandfather, William P. Gannon, and her father, Champion Farmer John J. Gannon.

For more information about Champion Farmer John J. Gannon, write to The Firestone Tire & Rubber Company, Akron, Ohio

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CHALLENGING OPPORTUNITIES IN AGRICULTURE

By DR. R. F. POOLE
President of Clemson College

Recently I had occasion to examinine closely a road map of South Carolina and it gave me a new sense of values although many advantages of this great state were not shown on the map.

Stretching across the state from the hills of the Piedmont, almost parallel in their course to the sea, is one of the finest water systems in the world. All the little creeks and branches which radiate like the limbs of a tree were not on the map. Our great system of primary roads which cover the state and connect all sections was shown in detail. Ten thousands of secondary roads, many of them top soiled and serviceable the year round, were not on the map but they are real. Also our marvelous climate and our fine forests and fields could not be shown. When we consider all these advantages it is easy for us to understand why people from other parts of this nation are intrigued by the valuable assets of the state when they visit us. Maps cannot give the full picture of the state's resources and values. There are few states that can present a more favorable composite of natural values.

The forests of the state contain values that await developing. Some cotton manufacturing plants which formerly manufactured cotton goods are now using rayon from the forests of the state. Growing trees for the production of rayon has now become an important phase of our agriculture. Furniture building, fabrication, and meeting needs of many sorts are possible with the great variety of trees which grow in South Carolina.

The clay resources are tremendous. Out croppings of valuable clays may be noticed along the road banks in many parts of the state. Some appear in large and valuable deposits. We shall soon appreciate their importance because the ceramic engineers of Clemson are busy discovering important uses for them. This is certain to encourage the manufacturing of many useful clay articles.

The map did not show the rich bottom lands that parallel the branches, creeks, and rivers. Where corn and pumpkins once flourished we now have blackberries and a thick growth of minor shrubs. This land could best serve the state if planted in pasture grasses to be harvested by fine cattle. First quality beef will be needed for the freezer lockers which will soon be found in most homes. Perhaps the manufacture of Stumphouse Mountain cheese will require far greater quantities of milk than now produced. Maybe a great dairy industry will develop throughout the state and the milk marketed in the form of fine, cured cheese. It would be a magnificent sight to see these stream lands cultivated and abounding with fine cows but this cannot be unless permanent and profitable marketing becomes a reality.

The production of 100 bushels of corn on an acre is not difficult when there is an ample supply of water. It is equivalent to the production on seven or more acres on some South Carolina farms in years when the rain fall is low. Why should there be any hesitancy in establishing practical farm irrigation throughout the state? Think of the saving in labor and fertilizer. Surely it deserves much thought and is worthy of development. Water is abundant and is distributed splendidly in all parts of the state.

South Carolina waters are well known for a large variety of excellent fish. Interest in fresh water ponds has resulted in an expansion of opportunities for fishing which is one of nature's greatest sources of pleasure. These fresh water ponds have given fresh fish to many farm families and many more are needed. The ponds may just as well serve two purposes—namely, fishing and irrigation.

The map showed a rugged coastal area with narrow strips of land spiking the sea. Nowhere else is there more inviting territory for sportsmen, for commercial fishing or for pleasure. Why not oysters and fish scientifically? This might be a great potential industry if more were known of the values.

Growing better plants through methods of selection and breeding; processing agricultural products for advantageous marketing and incidentally more profit to the grower; the application of chemistry in improving and preserving the products of the farm; and strengthening our industries through the improvement of the products of the farm are rich goals for us to achieve.

Scientists, business leaders, and thinkers with vision, determination, and courage are what South Carolina needs and deserves. The men of Clemson are at work but many more are needed. Opportunities, among a wonderful people, in an enviable climate, and with about everything a human being should desire in life, are here for your consideration. Knowledge, wisdom, and a willingness to work are essential if you want to become a part of the group that can make reality out of these visions.

FIGS IN SOUTH CAROLINA

PRODUCTION MOSTLY FOR DOMESTIC CONSUMPTION; GROWN IN ALMOST ALL SECTIONS OF STATE

By T. L. SENN
Instructor of Horticulture

Fig growing in South Carolina is mostly a home enterprise. There are from a few to a thousand or more trees in every county. According to the Department of Agriculture, 1940 Census the eight leading counties with trees of bearing age are: Greenville, 1,377; Florence, 1,149; Orangeburg, 1,110; Spartanburg; 1,059; Anderson, 934; Lexington, 893; York, 828; and Darlington, 701.

Orchard plantings are generally disappointing, but growing figs for home use and nearby markets should be encouraged. A few trees growing about buildings and in yards will supply the family with a fruit that is used in many ways and the surplus may be sold at nearby markets for a cash return. Figs must ripen on the trees for best flavor. They are highly perishable and will not stand shipment.

Fig trees are easy to propagate and a home planting can be produced at very little expense. The simplest and most generally used method of propagating figs is by means of stem cuttings from a tree known to do well in the locality. Recommended varieties for South Carolina are Brown Turkey, Celeste, Magnolia, Green Ischia and Brunswick. Cuttings should be made in the latter part of the dormant season, usually in February. The cutting should be about 8-10 inches long, the upper end severed just above a node, the lower end severed just below the node and of 1 or 2 year-old wood; tips and soft growth aren't satisfactory. They are set directly in the nursery row in well drained and well prepared soil. The depth of planting is governed by the length of the cutting. They should be planted quite deep so that only one bud is exposed and spaced 10 inches apart in the row. In case of dry weather, watering in the early spring will aid in the growth of the cuttings. These cuttings root early, grow rapidly and make good trees for permanent planting in the fall. These trees may be expected to bear a few figs the second year, gradually increasing to a full crop by the fifth year. Fig trees may also be propagated by layers. Suckers arising below the ground surface frequently root, and they may be separated from the parent tree and planted also.

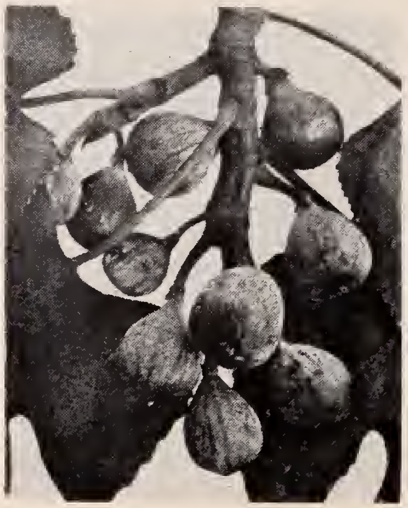

Fig trees will grow on a very wide range of soil types as shown by the eight counties in South Carolina having the greatest number of bearing trees. However, the importance of selecting a soil that is well drained but retentive of moisture during dry periods with a fairly high degree of fertility and containing lots of humus needs to be emphasized. Too much shade often results in a poor crop. Fig trees require only moderate applications of fertilizer. If growth is below normal, make a moderate application in the spring of low nitrogen mixed fertilizer for they are easily stimulated to make rank leaf growth at the expense of fruiting.

Fig trees require little pruning; just enough to keep growth within bounds and to keep the tops open to sunlight and air and to remove dead wood. Pruning should be done during the winter months, preferably after the coldest weather is past but before growth starts in the spring.

Most fig varieties bear two crops a year; a light one in early summer borne on previous season's wood, and the second crop in mid-summer or late summer borne on current season's wood.

The fig is subject to numerous diseases and insects most of which are not serious enough to receive special attention in home plantings. The nematode root knot (a very small eellike or wormlike organism) is a serious pest of figs and is found practically everywhere that figs are grown. There is less root knot development in trees growing about buildings and in chicken yards than in orchard plantings, less in heavy soils than in sandy soils.

Providing the tree with good growing conditions seems to be the best way to combat the nematode. The first 2 or 3 years after planting are harder on a tree, so it should receive special attention at this time. Fig fruits often split and sour as they ripen and various insects then eat the fruits. The ripe fruit should be picked promptly; this will aid in controlling the spread of the organism that causes decay. Pruning the tree so that the top is open to allow sunshine and air to enter after a rain helps to prevent decay. Birds often eat quite a lot of frui,t but about all that can be done to avoid this loss is to harvest the fruit as promptly as possible.

DITCHING WITH DYNAMITE

DRUDGERY IS TAKEN OUT OF DITCHING; NEW, FASTER METHOD IS DEVELOPED

By S. P. YOUNG
Agricultural Engineering, 1950

Dynamite, if properly used under certain conditions is one of the easiest methods of excavating ditches that is in use today. Ditching with dynamite, as compared with other methods of ditching, has the advantages of being faster, cheaper, and simpler. There is no overhead expense for equipment; no large pile of soil is left along the ditch, and no limit is placed on the size ditch which may be dug.

Two distinct methods of blasting ditches, the propagation and the electric, are used. By the propagation method, which is generally used in swamps or other wet soils, only one hole is primed. The concussion produced from this explosion is sufficient to propagate the detonation through the wet earth and set off the whole line of charges. Since the concussion of the initial blast will not carry well over eighteen inches, care should be taken not to space the charges more than that distance apart.

The electric method may be used in almost any type soil except dry sand, in which it is practically impossible to blast ditches. In this method, sible blasting caps, which are inserted in every charge, are connected in series, or in parallel series, and exploded simultaneously by a blasting machine. Since the propagation method requires the priming of only one charge, it is the cheaper of the two and should be used whenever the soil is wet enough to transmit the propagation wave.

When blasting a ditch, several methods of loading the charges of dynamite are used. These are the Single-Line Method, the Cross-Section Method, the Post-Hole Method, and the Relief Method. In all except the Post-Hole Method, the charges are loaded one above the other. The dimensions of the ditch are the main factors in determining which of these methods to use.

The Single-Line Method, just as its name implies, is a single line of loads spaced at equal intervals along the center line of a proposed ditch. Extreme care should be taken in placing the charge with the top of the last load not more than twelve inches beneath the surface, except in special cases. If solid ground lies below the wet soil at the bottom of the proposed ditch, the charge may be placed directly on the hard ground. Since the dynamite blast is prevented from acting downward by the hard ground, its entire force is directed upward, producing satisfactory results even if the top of the last load is more than twelve inches below the surface.

To prveent a rounded end when using the Single-Line Method, two small charges should be placed on both sides of the center just past the last charge, making the end of the loaded section resemble the letter "Y".

The Cross-Section Method of loading is similar to the Single-Line Method in that it consists of a single line of holes down the center line of the proposed ditch. Perpendicular cross rows located at every other hole is the only difference. When wide, shallow ditches are desired, the Cross-Section Method is desirable and has been used with much success.

This method, with a slight variation, is sometimes used to clean out filled-in drainage ditches, provided the depth is not more than half the width. Instead of cross rows being placed at every other hole, they are

(continued on page twenty-four)

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PEPPER INVESTIGATION

SOUTH CAROLINA AMONG LEADERS IN PEPPER PRODUCTION

By O'NEAL MILLER
Horticulture, 1948

The annual production of red peppers in the United States is approximately one million pounds. This acreage is grown mostly in California, Louisiana, Mississippi, New Mexico, Arizona, and South Carolina. The main production area in South Carolina is located in Florence county was estimated at 3,00 acres, and was valued at approximately $750,000.

In general, the pepper is started early in the spring in hot beds or cold frames, and later the seedlings are transplanted to the fields. The culture methods are similar to those of cotton, tobacco, and sweet peppers. Harvesting of the pods begins during the latter part of August and continues until the plants are killed by frost. The pods are then transferred to tobacco curing barns where they are placed in trays with screen wire bottoms. After three to five days of drying at a temperature of 130 degrees F to 150 degrees F., the pepper is removed. The pods are then placed in bins where they are allowed to absorb moisture and regain their pliability. The pods are compressd in burlap bags, packed 150 pounds per bag, and shipped to northern mills where they are processed.

In 1942, the South Carolina Experiment Station was called on for help in improving the varieties of hot pepper grown. John A. Martin, Assistant Horticulturist, acted upon this call, and became the official pepper breeder. Upon investigation, he found there were many variations in pungency, productivity, pickability, pod shape and size. There were numerous diseases attacking the pepper plants and fruit. After studying the problem, he decided that the ideal pepper plant should be productive, stand erect with a good crop of fruit, hold the crop well above the soil, withstand hard winds, and be disease resistant. The pods should be long and smooth, highly pungent, easy to pick, disease resistant, easy to dry, and retain their color during storage.

In the beginning of this breeding work, seed was saved from twenty-four plants of the Japanese type and sixty-five plants of the Cayenne type selected at Florence. During 1942-43, the plants were grown in greenhouses and self-pollinated. During 1943, the progenies of the selfed plants plus seed from the original plants were planted at Clemson. Thirty-five percent of the Cayenne type have been eliminated due to unproductiveness and undesirable plant types. All of the Japanese type were kept as they have a higher degree of uniformity, and possess other desirable characters which may be valuable in the future breeding work.

After several years of breeding work, several selections have been found with marked improvement over the Cayenne varieties which are now available to the growers. Some selections show resistance to nematode root knot, bacterial leaf spot, and mosaic diseases as well as having other desirable characters. However, the obviously important factors have not been combined in a single variety. From this point on, it will be necessary to carry out a hydridizing and testing program in order to combine as many of the desired characters in a small number of varieties or in a single variety.

The pepper growers have benefited considerably from the breeding work so far. Plant sterility has been eliminated from all strains. The factor for sterility alone is now known to have reduced the yield of peppers as much as 22 percent. Pepper seed from the latest advanced generations of promising strains have been released to the growers ever since 1943.

Although several varieties have been found with several good characters, this breeding work will continue until the ultimate goal is reached in which a variety is found possessing all of the desired characters. So far, 302 strains have been developed from the original selections made in 1943.

Along with this breeding work, Mr. Martin is accumulating and maintaining a "Pepper Gene Bank" which will be invaluable to the pepper breeding program. The "Bank" consists of pepper varieties of all types from all over the world.

POLLINATING WITH BEES

IMPORTANCE OF BEES AS POLLINATING AGENTS BRINGS INCREASED DEMAND FOR THESE INSECTS

By Wm. R. TRAYLOR
Entomology, 1948

The value of pollination of cultivated plants by the honeybee is many times more important to the welfare of Agriculture than the value of the honey produced. It is true, however, that most beekeepers are primarily interested in the production of honey and beeswax. Every day brings new evidence of the fact that agriculture has suddenly become aware of the part bees play in the pollination of their crops.

This sudden awakening to the necessity of bees for pollination has brought about a tremendous demand for bees in localities where heretofore they were practically non existant. Insects which once did the job of pollination are being destroyed by the use of insecticides and the intensive cultivation of the soil is breaking up their nests and breeding places. These insects are very slow in making their reappearance. Since the honeybee is the only known pollinating insect which can be supplied in large numbers in any area at the will of man, honeybees, could be introduced into any area for pollination and removed after their job was completed. Often when large scale applications of insecticide to crops begins the bees in the area must be removed.

Horticultural crops in particular depend on bees almost entirely for pollination. A list of pollination insects which are of greatest value to Horticultural crops is as follows: (1) Honeybee (2) Wild Bees (3) Bumblebees (4) Syrphid flies. Most crops such as cranberry, cucumber, grape, strawberry, watermelon and clovers require early pollination. Bees spend the winter in large numbers, so they are always much more numerous in the early spring when so many cultivated plants need pollinating agents. Therefore the honeybee has come to be regarded as very necessary for many crops.

The honeybee has proven to be by far the most effective pollinizing insects for horticultural crops. Many truck farmers who specialize in the production of the crops listed above, have made provisions by which their crops are properly pollinated by the use of honeybees. Bees may be rented by the colony for the purpose of pollinizing crops. The usual rental price varies from $5.00 to $10.00 per colony or hive. The price is based on the loss of bees and on the honey produced during the period which the bees are rented.

Seed growers have become aware of the fact that their yields per acre increase if bees are present in sufficient number. Some seed crops are wind pollinated but the presence of bees has often shown a marked increase in the production of seed. Since bees are well suited for the pollination of legumes, the production of seed, especially from clovers, has been increased tremendously.

Flower growers have been using bees very successfully in the last few years as cross pollinators for the production of new varieties of flowers.

Agriculture in general has taken very little responsibility in increasing and stabilizing the honeybee population. It has become increasingly evident in recent years that distribution of the honeybee population in some areas is completely out of balance. Migratory beekeeping by some of the large commercial beekeepers has partially offset this difficulty. There still remains a large area in which the population of pollinating insect is far below what it should be. The cucucumber and canteloupe growers in lower South Carolina are becoming aware that they need bees in order to produce better crops.

Corn, though originally considered wind pollinated, produces a better crop if plenty of pollinating insects are present. It may be possible by the use of bees as pollinators to produce more corn than is at present being produced.

In January, 1944, at the meeting of the National Fedration of Beekeepers' Association, a Honey and Pollen Plants Committee was appointed to acquire a closer relationship between the various Agricultural groups which are dependent upon pollination for the production of many agricultural crops. Mr. David Dunavan, Associate Professor of Entomology and Zoology, of Clemson College is a member of this committee. For several years he has carried on investigations along beekeeping lines, one of these being detailed studies of the relationship of bees to South Carolina plant life.

The importance and value of pollination by honeybees in the near future may create a new era in the production of Agricultural crops. World shortages of food have pointed to the necessity for increased production of food crops. In order to insure adequate pollination of our crops, the U. S. Department of Agriculture has asked for a country wide increase of 6 percent in the number of colonies of bees for 1947. The South Carolina quota calls for 2 percent increase. Unfortunately the current shortage of beekeeping supplies and equipment is preventing much, if any increase. Close cooperation between all allied Agricultural groups and beekeepers is paramount for the increased production of their respective goods.

The interest of scientific men in this problem is exemplified in the following expression from Professor Dunavan; "The close association between our flowering plants and pollenizing insects, especially honeybees,

(continued on page eleven)

RAISING THE DAIRY CALF

RAISING OF CALVES MOST IMPORTANT IN CARE AND MANAGEMENT OF DAIRY HERD

By R. M. HANCKEL
Dairy, 1948

There is no more important detail in the care and management of a dairy herd than the raising of calves. A sufficient number must be raised to replace cows that go out of the herd. An important consideration in calf raising is that of avoiding introduction of diseases. By depending upon the purchase of milk cows to replenish those that go out of the herd, there is great danger of introducing one or more of the infectious diseases with which cattle are afflicted.

The young calf needs a ration which not only furnishes all the nutrients necessary for maintenance and growth but which is strikingly different from rations of mature animals in that it must be highly digestible. Milk is the only feed that will satisfactorily nourish the calf from birth until it is several weeks old. The digestive tract of a calf only a few days old cannot digest high fiber feeds such as hay and silage. It is important, therefore, that calves be fed milk until they are able to utilize feeds containing starch and fiber. Even after this time milk should be fed to supply amino acids, vitamins, and minerals, in which the other part of the ration may be deficient.

Lack of care during the first few days usually means the loss of a large number of calves that might easily have been saved. The breeding records of the herd should be watched in order to know when calves are expected to be born. Prepare a box stall a day or two in advance. This stall should be thoroughly cleaned and disinfected. It should then have large amounts of clean, dry bedding placed in it. Drafts should be avoided although fresh air is desirable. The calf should always be kept dry and warm.

As soon as possible after the calf is born, paint the exposed part of the navel cord with tincture of iodine, using a small brush or a piece of cheese cloth. If iodine is not available, use a 5 to 10 per cent solution of a coal tar disinfectant, placing this in a cup and holding up under the calf so that the navel cord is immersed in the solution. Repeat the treatment daily until the cord becomes dry. This helps to prevent disease germs from entering the body of the calf at that point.

Teaching the calf to drink is an operation that requires considerable patience, as some calves are slow in learning to drink from a pail. The calf should be left with the mother for one or two days. This helps to relieve the pressure on the cow's udder and also the calf learns to nurse faster. The best method for teaching the calf to drink from the nipple pail is by wetting the nipple with warm milk and forcing it into the calf's mouth. The calf will learn to nurse from the nipple pail earlier if the flow of milk is started by squeezing the nipple a few times with the hand. Use milk from the mother of the calf for feeding the first few days, unless the milk is not suitable on account of its being thick, stringy, or too rich. Milk that is rich in fat sometimes causes digestive disturbances. After the calf is five to seven days old, milk from the herd may be substituted for the mother's milk. The nipple pail is not yet widely used; however, this pail has the advantage that the calf drinks the milk slowly, enabling it to go to the right stomach where it is digested correctly. In drinking from an ordinary pail the milk is gulped down going into the wrong stomach where it ferments and causes digestive disturbances.

A good rule to follow in determining the amount of milk to be fed is that 1 pound of milk should be fed daily for each 10 pounds of live weight of the calf, with a maximum of 10-15 pounds daily. Plan to feed the calf twice daily at nearly equal intervals as possible. The milk being fed should be at body temperature (100° F).

Feed liberal amounts of whole milk to the calves until they are four weeks of age. During this period use every effort to encourage the calves to eat grain mixtures and legume hay. Keep a supply of mixed concentrates of different kinds, such as wheat bran, ground oats, cotton seed meal, and ground corn, where the calves have constant access to them.

When silage is available it may be fed to calves as soon as they will eat it, which is usually at three months or more. At this age, feed 2 or 3 pounds daily and increase the amount about 1 pound per day each month of the calf's age.

Calves should be turned into a separate pasture when six months of age or more and shade should be provided in very hot weather. Make sure that they are receiving sufficient feed to keep them growing, also a constant supply of fresh water and common salt.

Well grown, vigorous animals are usually those that have had excellent care from birth and are much more resistant to diseases. A good dairy man, therefore, takes the job of raising calves as an important one.

ROOT KNOT OF TOBACCO

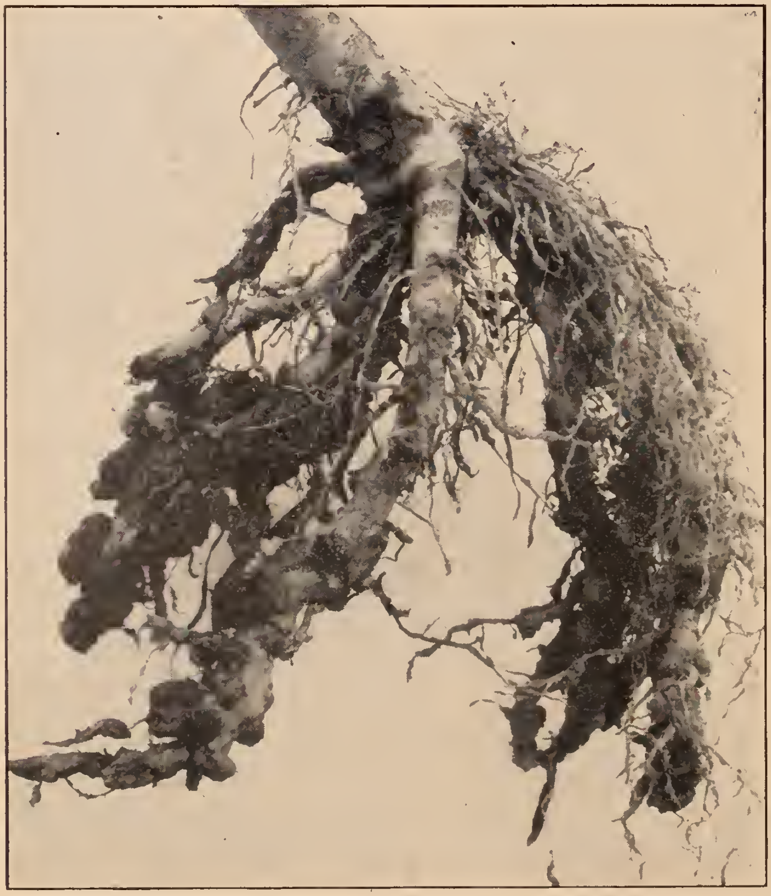
ROOT KNOT DEVELOPED INTO DREAD; CUTS TOBACCO QUANTITY GREATLY

By LEWIS B. SMITH
Agronomy, 1949

During the past several years root knot has developed into one of the most feared diseases of tobacco in South Carolina. Although many controls and preventatives have been suggested and recommended, almost every farmer's tobacco crop in the state is plagued with the disease. In some sections of the state the quantity of tobacco has been sliced in half.

This disease is caused by a microscopic eelworm, called a nematode, which bores into the tobacco root and produces knots or swellings of various sizes. This nematode not only affects tobacco, but also lives as a parasite on practically every vegetable crop grown, as well as cotton and sweet potatoes. Once a plant is infested with this pest, there is little hope of more than a fair yield. This disease occurs in the tobacco plant bed and in the plant after it has been set in the field.

In the plant bed severe infestations cause marked stunting and yellowing of plants. Enlargements in the main and secondary roots are distinctive symptoms. Once the nematode has entered a plant bed and infested the plants, the plants are rendered practically useless to the farmer. This disease can be controlled in the plant bed by moving the bed to a new uninfected area or by sterilizing the soil with uramon or a combination uramon-cyanamid treatment.



Although root knot affects the plant bed, the majority of the damage is done after the plants have been set in the field. Besides causing the tobacco to turn yellow and become stunted, it is more subject to wilting during periods of dry weather or hot sunshine. A female nematode matures at the age of three weeks, depending on the temperature, and lays hundreds of eggs which are sometimes held together in masses by a gelatinous material. Under favorable conditions these eggs hatch into larvae, which remain within the same root or migrate through the soil and infest other roots.

Aeration of the soil is favorable to hatching of the eggs. A crust on the soil reduces aeration and delays hatching. After the eggs hatch if no susceptible plants are available, the larvae gradually exhaust themselves and die. Larvae are more susceptible than eggs to killing by various conditions.

One of the most effective ways of combating nematodes is by starvation. To obtain the maximum control of nematodes by starvation, weeds must be destroyed every ten days in warm weather to keep the worms from maturing and producing eggs. The interval between plowings may gradually be lengthened to a month or two months in cold weather.

Although these recommended controls will combat the root knot nematodes efficiently, many farmers have accepted this loss to nematodes as a percentage loss which would have occurred anyway. By practicing these controls, root knot could be virtually wiped out in the span of a few years.

The author would like to ask the tobacco farmers of South Carolina to practice aeration of the soil, rotation of crops and other preventatives and controls which would annihilate root knot in the tobacco of South Carolina.

ANIMAL HUSBANDRY DEPARTMENT EXPANDS

EQUIPMENT AND CATTLE ADDED IN THE ANIMAL HUSBANDRY DEPARTMENT'S EXPANSION PROGRAM

By H. Z. WOODFIN
Animal Husbandry, 1949

With the changing system of farming in South Carolina, Clemson changes to meet the requirements of the students and of the state. In South Carolina numbers of livestock are increasing, meat prices are higher than never before, the demand is good, and more interest is being shown all over the state in livestock enterprises. Both beef and pork have set an all-time high in prices this summer. More interest is being shown toward the production of high quality meats and in raising of pure bred animals. To keep pace with these changes Clemson has also changed. The enrollment here has now reached an all time high. The percentage of students majoring in Animal Husbandry has also increased. With all of these facts in mind it will be easy to see why the Animal Husbandry Department has had to expand.

The department is very proud of the new show barn for show cattle and judging work. This is one of the nicest show barns in the south. The building is 120 feet long and 40 feet wide. There are 20 stalls 12 feet by 12 feet. The building is fireproof and has all the modern conveniences including; automatic drinking fountains in every stall, metal feed troughs, and metal pens. Plans also call for an arena for showing and judging to be constructed later.

The Polled Hereford herd now numbers 70 females of breeding age and 40 seven months old calves. This is the largest number of Polled Herefords owned by any agricultural school in the United States. All of the cows are bred to Battle Domino 11th. He was bred by John M. Lewis, one of the nation's top breeders of Polled Herefords. This bull was brought here from Welsh Brothers of Garfield, Kansas. He is a proven sire, being the sire of the reserve champion female in the National Polled Hereford show and sale. This female sold for $6,000.00, which was more than the champion brought.

The Animal Husbandry Department has a small herd of Angus started. There are now fourteen of them. The foundation of this herd was purchased at the Bray's Island Plantation of Yemassee. The females are being bred to General 2nd. He is also from Bray's Island. The Angus are noted for refinement of bone and quality of meat.

Experimental work is being carried on with winter-grazing. Italian rye grass and crimson clover have given gratifying results and promises greater use in the future in the livestock programs of the South. Work is also being done in temporary pastures. An experiment is now being run on the relative values of kudzu, permanent pasture grasses, annual lespedeza, and sericea lespedeza. Work is also being done in the fertilization of pastures.

The meats laboratory has added an electric meat and bone saw, a meat slicer, a thermoplastic no-air-rap machine, a lard rendering kettle, and some new meat blocks.

A new hog barn has been completed with facilities for sows with litters and for carrying out feeding tests and other experiments. There are sixteen individual pens for sows with litters and fifty experimental pens. Between 30 and 40 lots are now being built. There will be some one-half acre lots and some one acre lots. The hog plant is on the Ravenel Place west of the Seneca River.

Due to the construction of G. I. houses in and around the area formerly occupied by the hog lots, the Department had to disperse the swine herd until a new hog plant could be constructed. Several new sows have already been added to the new hog plant. The breeds the department is planning to keep will be: Berkshires, Hampshires, Poland Chinas, and Duroc Jerseys.

The sheep herd includes Southdowns, Hampshires, and Dorsets. There are about 100 in all. The Hampshires, seem to be about the best breed for South Carolina, but the Dorsets are noted for having early lambs which are very good for this region. Clemson has done some very successful work on diseases and internal parasites of sheep. The old hog barn is the temporary sheep barn. Plans are now being drawn up for a sheep barn.

Mr. D. Richardson, a graduate of Clemson in the 1938 class and a major in Animal Husbandry, came to us from Orangeburg County where he was assistant county agent. He is taking Professor E. R. Hauser's place in the faculty of the Animal Husbandry Department. Professor Hauser has gone to Missouri Agricultural College to get his Ph.D. in Animal Breeding.

All men graduating in Animal Husbandry last year were placed in good jobs before they graduated. There is still a great demand for Animal Husbandry graduates. The future of the livestock industry in this state looks very good.

POLLINATING WITH BEES

(Continued from page eight)

has been so commonplace that it has been taken for granted all through the ages. However, we seem to have suddenly come to the realization that man should adopt a positive course of action in order to insure adequate pollination of his cultivated crops. The situation assumes sobering proportions when we realize that without the services of pollen-carrying insects, several hundred species of plants would automatically pass out of existence."

S. C. DAIRY ASSOCIATION MEETS

GROUP IS A GREAT AID IN PROMOTING DAIRY INDUSTRY IN SOUTH CAROLINA

By **R. M. HANCKEL**
Dairy, 1948

The South Carolina Dairy Association, Inc., which will hold its third annual convention in Columbia, S. C., November 11th and 12th, has been most successful in accomplishing its primary purpose — to promote the interest and general welfare of the dairy industry in the State of South Carolina.

In addition to creating better feeling and understanding between producers, distributors, and consumers, it has aided and encouraged a number of persons to enter the milk industry, particularly in the milk production field. This has been achieved through the cooperation of plants with farmer-producers in the development of a sound program of milk production.

The first step towards organizing the dairy industry was taken in 1940 when representatives from Clemson College called a meeting of the dairy leaders of the state to discuss the possibility of founding a dairy association. The South Carolina Dairy Industry Council was formed at this meeting, and its duties were to meet and discuss the problems of supply and demand and to act as an agent between government agencies and the producers, distributors, and consumers under war-time conditions.

In 1943, a mass meeting was called at the Township Auditorium in Columbia, S. C., to act upon OPA regulations and to ask that suitable adjustments be made in milk prices in the State of South Carolina. From this meeting emerged the South Carolina Milk Producers and Distributors Association. Committees representing the organization met with representatives of OPA and other government agencies in an effort to regulate war-time price control on milk and other dairy products. Subsidy payments to the producer were gained through the efforts of this group, as were many other beneficial interpretations of war-time control.

A group of South Carolina dairymen, many of whom were members of the South Carolina Dairy Industry Coucil, attended the North Carolina Dairy Association meeting in the spring of 1944. They were so impressed by its purpose and accomplishments that immediately upon their return they called a meeting of dairy representatives from all sections of the industry. Also invited to attend were representatives from the South Carolina Milk Producers and Distributors Association and the South Carolina Ice Cream Manufacturers Association. It was agreed upon to organize the entire industry under the name of the South Carolina Dairy Association, Inc. An incorporating board was elected to draw up the constitution and by-laws which were to be submitted for approval at the first annual convention.

Mr. C. B. Parr, a producer from Newberry, S. C., was elected first president of the organization and Mr. George B. Salley, of Orangeburg, S. C., the first secretary. The first board of directors was composed of three producers, three dairy products manufacturers, and three distributors. However, the Constitution was later changed to include six producers, giving producers equal representation with processors and distributors.

An Association office was opened on January 1, 1946, in Chester, S. C., Mr. W. L. Abernathy, Jr., as the executive secretary, was appointed to contact state legislature, officials in Washington, and all other state, national, and international dairy organizations and to keep the dairymen of South Carolina informed at frequent intervals of recent developments in the dairy industry.

In September, 1946, the President and the Secretary of the Association were authorized by the Board of Directors to appoint finance committees composed of a producer, a distributor, and a manufacturer from each of the three districts. These committees were to work out a suitable plan for collecting membership dues from the producers through the distributing and manufacturing plants.

The 1946 convention of the SCDA was held in Columbia, S. C., November 19-20, and was attended by approximately 275 dairymen. Officers elected were: president, F. S. Hanckel; vice-president, C. G. Cushman; and W. L. Abernathy, Jr., re-elected executive secretary.

Through this organization, dairymen of South Carolina—producers, distributors, and manufacturers—are working together to combat the problems facing the industry today and to plan for a bigger and better dairy products program for the future.

As stated in the SCDA constitution, it is the purpose of the organization to promote the industry particularly in regards to the production. processing, manufacture, storage, distribution, and sale of milk and other dairy products, and to recognize the general problems encountered by farmer-producers. Members are striving to improve dairy herds by breeding programs and to assist in obtaining greater milk production at fair and proper cost.

Dairy companies in the state have become more "public relations" conscious than ever before and are doing all they can to stimulate the consumption of all type dairy products by the general public, not only as requirements for a well balanced diet but as refreshing in-between snacks for children and grown-ups alike.

THE AGRARIAN PRESENTS . . . W. B. CAMP

GRADUATE IS LEADING AGRICULTURIST & PHILANTROPIST

By LEN REYNOLDS
Vocational Agricultural Education

W. B. Camp of Bakersfield, California is one of Clemson's most successful graduates and is one of the leading figures on the national agricultural scene. Mr. Camp has been a most liberal contributor to various foundations and funds at Clemson. Recently this wealthy agriculturist from California gave Dr. Robert F. Poole, president of Clemson College, a check for $10,000 for the study of irrigation and it's adaption to the type of farming carried on in the Palmetto State. Mr. Camp was born near Gaffney, South Carolina and attended the public schools of Cherokee County.

After graduation from high school, Camp enrolled at Clemson College for a course in Agriculture. He graduated with distinction as a member of the class of '16 in Agronomy. Dr. R. F. Poole and Mr. S. C. Stribling, Agricultural Editor for the Extension Service, were classmates of Mr. Camp here at Clemson.

While at Clemson Mr. Camp took an active role in the various service clubs and societies and was outstanding as a student leader.

After the successful termination of his collegiate career, Mr. Camp entered the farming business. At the present time he is known as perhaps the largest producer of potatoes and sugar beets in the United States. W. B. Camp and Sons own a number of enterprises in California in addition to their extensive farming interests.

Mr. Camp is now a member of the Executive Committee of the Clemson Corporation. This generous donor has contributed large amounts of capital to the Clemson Foundation and to the building fund at Clemson.

Mr. Camp, who is quite prominent in agricultural circles in the United States, is in the running for the post of Chairman of the United States Chamber of Commerce. Should this former Clemson student be selected for this distinguished position, it would heap laurels upon the name of Clemson College.

W. B. Camp, Jr., and Don Camp, sons of this outstanding Carolinian who lives in California, returned to Clemson to graduate with the Class of '47 after spending several years in the service of their country.

The generous donation that this wealthy Clemson benefactor made to Dr. Poole will be used to send two men to California to study irrigation methods and it's practical application to the farms of South Carolina.

Mr. H. Z. Duffie of the Extension Service has been selected as one of the two men who will be sent for irrigation study. The other man has not been selected at this time. These men will leave in June for California to begin their work.

By granting this gracious contribution to progressive agriculture in South Carolina, Mr. Camp will make it possible for South Carolinians to have available to them in the future an ever increasing source of knowledge and "know how" on the subject of irrigation. There is a definite need for this knowledge at the present time because there are farmers in South Carolina who wish to irrigate parts of their land but do not have the correct knowledge on procedures and methods. One tobacco farmer in Darlington obtained very encouraging results after he added several inches of water to his tobacco fields. This farmer used very crude methods and his labor cost was high, nevertheless his yields increased sufficiently to cover the extra labor costs and show a much greater yield in pounds and much better quality. This is only one example of what could be done if proper information were available to the farmers of this state.

Clemson College and the people of the agricultural field in South Carolina should be most grateful to Mr. W. B. Camp for his generous gift which will make possible this forward step for scientific agriculture in the state of South Carolina.

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BETWEEN THE

PROFESSORS LEAVE CLEMSON

Dr. S. P. Marshall, who has held the position of Associate Dairyman on the staff of the South Carolina Experiment Station for several years left recently to assume duties of Associate Professor of Dairying at the University of Florida, his alma mater. While at Clemson, he was very active in Alpha Zeta, Blue Key, and was of invaluable help to "THE AGRARIAN".

AG. PROFESSORS PROMOTED

Dr. R. F. Poole recently announced the following appointments of professors in the School of Agriculture.

Those promoted to professor are R. R. Ritchie, animal husbandry; and J. M. Stepp, agricultural economics.

Moving up to associate professor were: E. R. Hauser, animal husbandry; W. N. McAdams, agricultural engineering; R. C. Shelley, agronomy; H. J. Sefick, horticulture; R. W. Rutledge, botany; and J. B. Whitney, Jr., botany.

Receiving appointments of assistant professor were: W. C. Godley, animal husbandry; F. W. Thode, horticulture; R. E. Ware, zoology and entomology; and J. B. Cooper, poultry husbandry.

JUDGING TEAM WINS

A livestock judging team from Clemson composed of T. C. Cartwright, Louis Cato, Robert McNair, and Charles Haines as alternate, won second place in the Southeastern Collegiate Judging Contest held at the Southeastern World's Fair which was held in Atlanta, Ga., on Sept. 29, 1947. Five teams from over the entire southeast participated with first going to V.P.I. and third to Mississippi State.

T. C. Cartwright won first place in Hereford Cattle and held third high score in the entire contest. The next contest will be held in November at Timonium, Md.

CLEMSON TO GET RADIO STATION

Through the efforts of the Agricultural Extension Service equipment has been purchased for a radio station to be set up in the library at Clemson in the near future. The station is to put on programs for the Extension Service as well as student programs from time to time.

This station is under the auspices of WAIM Anderson, is to be headed by Paul Seabrook, Horticulture '41. While at Clemson Mr. Seabrook was a member of Alpha Zeta and Horticulture Editor of "THE AGRARIAN".

POULTRYMEN MEET AT CLEMSON

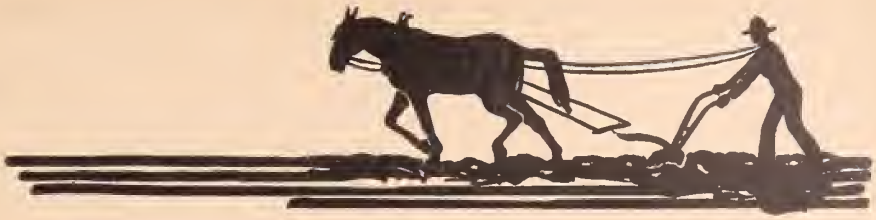
The National Poultry Science Association held its thirty-sixth annual meeting at Clemson, August 25-28, 1947. There were 248 members present representing 42 states of the United States and three provinces of Canada. This was the first convention of its kind ever held at Clemson.

NEW PROFESSORS AT CLEMSON

Beginning their work as professors in the School of Agriculture at Clemson this semester are: Dr. A. C. Mathews, a native of North Carolina who obtained his B.S. and Ph.D. at the University of North Carolina and is now teaching Botany and Plant Pathology; Dr. K. Lehotsky, who was born in Czechoslavakia and did his undergraduate work at Prague, before coming to the U. S. to obtain his Ph.D. in Forestry from the University of Michigan and is now teaching Forestry, and Prof. James H. Ard, who graduated from Texas A. & M. and is now teaching Rural Electrification and other Agricultural Engineering courses.

DEPARTMENTAL CLUB PRESIDENTS

A.S.A.E.	E. B. Rogers
Agricultural Economics	J. D.Bozard
Kappa Alpha Sigma	L. Bird
Animal Husbandry	T. C. Cartwright
Dairy	C. E. Cousins
Horticulture	J. Rodgers



FURROWS

ROSENKRANS HEADS AGRONOMISTS

Duane B. Rosenkrans, Managing Editor of the AGRARIAN, and vice-president of Kappa Alpha Sigma was recently elected national president of the Student Division of the American Society of Agronomists.

The annual meeting will be held in Chicago soon and Rosenkrans is now making plans to be present and preside at the meeting.

FORMER EDITOR NOW AT DURHAM

Bill Reasonover, editor of the last edition of the AGRARIAN, who finished Clemson last June, recently accepted the position of Educational and Public Relations Director with the Durham Farmers Mutual Exchange at Durham, North Carolina.

While at Clemson, in addition to being editor of the AGRARIAN, Bill was very active in many other organizations on the Clemson campus. He was a member of Blue Key, Tiger Brotherhood, Alpha Phi Omega, Wesley Foundation Council, YMCA Cabinet, Agricultural Economics Club, and Senior Council.

NEW AG. ECONOMISTS

L. D. Malphrus, a native of Jasper County who finished Clemson in 1938 and received his M.S. from the University of Tennessee recently came to Clemson as Asst. Agricultural Economist. Before coming back to Clemson he served in the Army for several years and also with the Farm Security Administration. Mr. Malphrus is now doing research in Marketing of Fruits and Vegetables.

James S. Miles, from Richland County, who graduated from the University of South Carolina and received his Ph.D. from The American University in Washington, D. C., is now connected with the S. C. Experiment Station at Clemson doing research in Marketing of Poultry and Eggs.

GRADUATE STUDENTS GET POSITIONS

Clemson graduated its first class of graduate students this past summer and all of them have acquired positions as follows:

George H. Bonnette, from Florence, is connected with the Agricultural Extension Department at Clemson.

Jackson V. McElveen, a native of Washington, D. C., is teaching Economics at Clemson.

James S. Plaxico, who hails from Sharon, S. C., is doing research in Farm Organization and Management at the Virginia Agricultural Experiment Station in Blacksburg, Va.

Joe A. Martin, from Bowersville, Ga., is teaching in the Agricultural Economics Department at the University of Tennessee in Knoxville.

B. J. Todd from Loris, S. C., holds the position of Assistant Agricultural Economist at Griffin, Ga., and is currently engaged in research in Marketing of Poultry and Eggs.

J. M. ELEAZER WINS AWARD

J. M. Eleazer, Information Specialist with the Agricultural Extension Department, during this past summer received a national prize for agricultural writing from the Association of Agricultural College Editors. Second place went to an Ohioan and third to a New Yorker.

DID YOU KNOW THAT . . . . .

- - - Governor J. Strom Thurmond graduated from Clemson in Horticulture in 1923?

- - - Duane B. Rosenkrans ,Managing Editor of the AGRARIAN, graduated from University of Georgia in Journalism and was editor of a Georgia weekly newspaper for a while?

- - - T. C. Cartwright, Chancellor of Alpha Zeta, recently became a proud "poppa"? And, where are the cigars, T. C.????

- - - Dr. W. E. A. Hussman, Associate Professor of Agricultural Economics, graduated from the University of Berlin?

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Clemson South Carolina

Agrarian Philosophy

By

The Editor

WINTER PROTECTION OF TREES & SHRUBS

The problems of the winter protection of deciduous trees and shrubs are largely those dealing with the protection of types that are not hardy or acclimated to their new location. In mulching trees and shrubs, care should be taken to extend the mulch out as far as the roots of the plant extend. This distance will correspond closely to the spread of the branches. This mulch, which may be of peat moss, leaves or straw, should be applied to a depth of about four inches and put on late in the season. It is best applied just before the ground freezes solidly. With plants such as some of the magnolias, abelias, some cotoneasters and similar plants, a heavier mulch, eight to twelve inches, will be desirable.

In the case of shrubs that form dense, compact masses, protection from snow is often necessary. With the larger plants, props beneath the branches are useful. With the smaller plants, tying the branches is the best solution. Strips of burlap inserted beneath the branch and tied to a stake are better than strings for this purpose.

With some plants that are not entirely hardy and are located in exposed situations, it is best to supply a screen of some kind. This screen may be a box, or evergreen boughs, or cornstalks may be placed around the plants.

AG. FAIR

One of the largest events on the campus before the war was the "Ag. Fair". This event was participated in by student and faculty members of all departments and schools.

Last year several student leaders with the aid of Prof. John D. Lane called a meeting of student and faculty leaders to ascertain whether or not they would be interested in reviving the popular enterprise. Favorable responses were received and this year another meeting was called and plans were made for having a fair this spring, mainly sponsored by the Agricultural Departments.

An overall faculty and student chairman will have charge of the program with assistants composed of the faculty and students to serve as committeemen.

Men from all departments will be called on to help.

When you are asked to assist, don't back down because it will take the combined efforts of all to make this show possible.

For those who are not familiar with this fair I'll try to summarize a few of the main points.

Each department used classrooms and laboratories for showing the work done by their group. Greenhouses, barns, and field plots were also opened for inspection during this event. Some commercial concerns also exhibited their products.

This will be the first fair that Clemson has had in a long time so let's everybody get on the ball, get busy and make it the best ever.

KEEP OFF!

After careful calculations by a member of the staff of this magazine it was discovered that six steps and approximately two seconds were saved by walking across the grass in front of the Dairy Building and Long Hall.

Now just what do you save by this shortcut? The grass is usually wet and your shoes will have to be shined more often . . . . If you shine them at all.

Recently Alpha Zeta sponsored the placing of manure on this plot of grass. Now we realize that many of our students are good farm boys and like the feel of fresh manure between their toes, but being as shoes are worn at Clemson, let's please, stay off the grass from now on and eliminate the bald spots on the campus, and also do away with the extra odors in the classrooms.

HYBRIDS IN THE FOREST

INTEREST IN THE CREATION OF HYBRIDS FOR FORESTS IN U. S. IS WIDESPREAD

By L. H. D. BOYKIN
Horticulture, 1948

"All our progress is an unfolding, like the vegetable bud. You have first an instinct, then an opinion, then a knowledge, as the plant has root, bud, and fruit. Trust the instinct to the end, though you can render no reason."—Emerson.

"Hybridization" is a fairly new word in our modern vocabularies. Relatively speaking, it is newer still in words and phrases peculiar to the field of silviculture. However, it is not startling that once man has succeeded in producing hybrids with one particular species of life he would seek henceforth to superimpose such principles of breeding and reproduction upon all other species of life, particularly those which man finds adaptable and useful to his own existence. Thus, the present day witnesses the presence of hybrid trees in our forests.

Man's activities account for the effort in this respect. Civilization's utilization of wood has outstripped nature's manufacturing output. The last decade has shown strikingly that the forests of the world are not producing timber as fast as the world needs it. The tree breeder has gone to work in many countries, developing new strains in the hope of increasing lumber production. It appears that hybridization offers the solution of this pressing situation.

This interest in the creation of hybrids for the forest is widespread indeed. In fact, concern in this respect appears little short of international in scope. Consider these facts: Australia and New Zealand, lacking softwood timber, a condition characteristic of the Southern Hemisphere, have led in introducing and acclimatizing foreign species; Russia has contributed to research on hybrid oaks and poplars; the British are noted for the development and analysis of ideas pertaining to the breeding of trees; Swedish interest has centered around the production of superior varities of aspen for paper pulp production and conifers for construction lumber; Germany has given intensive attention to poplars and long-sustained interest in the conifers continues; Denmark has made noteworthy strides in indoor techniques for dwarfing trees, forcing early flowering, grafting imported scions on potted rootstock, and other ingenious devices that have reached a high stage of development; in 1943 the Union of South Africa established a tree-breeding program; commercial operators in the Amazon Valley of Brazil have done outstanding work on quinine and rubber trees; and, as is obvious, work of this kind is quite extensive here in the United States and in Canada.

There are several fundamental differences in breeding agricultural plants and forest trees. Breeding agricultural plants requires genetic uniformity. With forest trees the natural species owe their existence and perpetuation to variability; thus some are able to survive attack by insects or disease and others invade new environments or withstand changed conditions. The timberman is accustomed to using trees from forests of natural origin and, consequently, variability does not disturb his as it would a farmer.

Establishing the uniformity and adaptability of new farm crops requires long, carefully conducted field trials by the breeders. Obviously, the average farmer must leave the matter to breeders. The forest planter is not at such a disadvantage. The interplanting of the hybrid or other new form with the standard strain or stock that would have been used throughout if the new form had not been available gives promising new trees that may be put to use as soon as they are developed or discovered, and the forest owner is not subjected to the element of risk.

The new hybrid trees can be planted at suitable intervals among a natural stand of young trees, or in every fifth row, or other selected interval where an entire area is to be planted. This method permits the covering of a greater acreage with new trees and reduces the cost involved in using a new and relatively expensive form. If the new strain proves superior, it will occupy the site at maturity, most of the slower-growing natural stand having been crowded out. Another common practice is the planting of 1200 trees to an acre where from one hundred to two hundred are desired in the final stand of trees at maturity. This excess planting demonstrates another way in which forestry differs from agriculture. Should the new strain prove inferior to the natural or planted stand, as the case may be, it will be suppressed and crowded out before the trees reach harvesting stage.

The techniques used in the hybridizing of forest trees are interesting, and the accepted techniques of today seem to assure success in such a program. The reproductive habits vary from species to species; with some trees it is possible to carry on an indoor hybridizing program and with others it must be done outdoors. Work with poplars is a good example of the former, while any program with the pine is of the latter nature.

There are two required conditions of controlled hybridization. First, the female flower of the selected female tree must be effectively protected from chance pollination during its entire period of receptivity; and second, the female flower should be deliberately and effectively pollinated at the height of its receptivity by pollen from the selected male tree.

Using the pine as a characteristic illustration, a suitable branch bearing unopened female flowers near the tip is selected; the needles from a section of the branch axis a few inches from the tip are trimmed by means of scissors. A pad of cotton wool is wrapped around the trimmed section and a glassine bag, known as the inner bag, size 7x12 inches is placed over the branch and fastened securely. A second pad is then wrapped around this tie and a kraft paper bag, the outer bag, 7 pound size, is placed over the glassine bag and tied wherby the pressure is on the pad. It should be noted that the kraft bag is a mechanical protection against wind and rain; the glassine bag is the true protective covering.

The pollen is collected in a Petri dish or beaker from the selected male tree, either directly or from detached branches brought into the greenhouse and placed in water prior to the time the anthers burst open and discharge their pollen. The pollen is then screened and placed in an Erlenmeyer flask that is loosely plugged with cotton wool and is stored until needed in a screw-top jar containing anhydrous calcium chloride under a cotton pad.

Pollination if affected by removing the kraft bag. The glassine bag is punctured with the pointed tube of a "Pollen gun", then a cloud of pollen is driven therein by squeezing the bulb of the gun two or three times. The puncture in the glassine bag is sealed with an adhesive patch; the kraft bag is replaced, and the inscription on the label is completed by adding designation of the male parent. Methanol is the substance used to clean the hands, glassware, pollen gun, and the like, to prevent contamination that might lead to undesirable male parentage; it is highly toxic to pollen and evaporates quickly.

A good example of a hybrid of the forest is the result obtained by crossing the poorly formed, and not very desirable, jack pine of the Lake States with the straight-growing lodgepole pine of the Sierra Nevedas. At the age of three years the hybrid trees approximate or slightly exceed the height of pure jack pines and are 179 percent of the height of the lodgepole pine. Of course, the logical locality in which to use this hybrid in planting is in the native region of the jack pine, because the hybrid has the straight, erect growth habit of the lodgepole pine.

At the present, information on inheritance in forest trees is almost entirely limited to comparisons between parental and F_1 materials, with only a few reported observations on F_2. The observations on the F_2 generations are largely of an incidental nature. Such mode of inheritance from F_2 data is assumed; the F_3 generation is required to prove, or disprove, the assumption. In genetics, time is of the essence; long periods between generations represent time obstacles, and the great emphasis placed upon direct utilization of the F_1 diverts attention from the F_2. However, research workers are always seeking short cuts. Recent work of John T. Buchholz of the University of Illinois gives promise of the possibility of recognizing a pine of superior growth rate by an examination of some of the embryos even before the seeds mature. The difference in fifteen months and three to five years alters the picture greatly.

The hybridization of forest trees is scarcely past the stage of infancy. However, the work is being pushed forward eagerly and steadily. The forests of tomorrow will pride themselves on their hybrid basis. Inheritance will have taken on new meaning for those who "lift their leafy arms to pray."

VETERANS ADMINISTRATION FINANCING PROGRAM FOR TRAINING FARMERS

By DOUGLAS A. BARFIELD
Vocational Agricultural Education

The advancement of agriculture and agricultural methods has necessitated the program of training farmers. Such a program of this is being financed by the Veterans Administration in cooperation with the State Department of Education. All veteran farmers are entitled to enroll in this training program in order to become more proficient in farming. Within the state the program is carried on by the State Department of Education and is handled by the Vocational Education Department. Over 500 special veteran teachers working under the direct supervision of the Vocational Agriculture teachers provide the necessary instruction to over 6,000 farm veterans in South Carolina. During the past year the Department of Vocational Agriculture Education of Clemson College has cooperated by offering training to these 500 or more teachers. Mr. F. E. Kirkley and Mr. W. C. Bowen have devoted a major part of their time in helping these teachers with their program and by furnishing material tc be used in instruction.

A veteran trainee is required to use a minimum of 46 hours per week in some actual farm work. Four hours of group instruction each week is offered to these men by the special veteran teacher. In connection with this, the teacher must spend a minimum of three hours each week supervising and giving instruction to the individuals. Each veteran teacher has an average of 12 veterans in his program.

The purpose of this entire program is to establish the veterans of this country in farming, so that they may pave the way for the future of agriculture. The results of this program are easily seen as the number of veteran farm owners is steadily increasing. With the aid of farm mechanization and utilization these men under the supervision of the Vocational Agriculture Education Department are moving forward to a new era in agriculture.

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SOIL CONSERVATION

PROPER EDUCATION OF FARMERS ESSENTIAL FOR SOIL CONSERVATION

By **FRED K. NORRIS**
Agricultural Engineering, 1948

Education is a prerequisite of conservation. It is essential to develop an intelligent public understanding of the value and importance of natural resources in terms of individual and national life. Only out of such understanding will the impetus to act rise.

Many of the techniques through which the process of education is advanced are familiar. They include the diffusion of information through radio broadcasts; through the printed word — in official publications, newspapers and magazine articles, textbooks, and so on. These well known procedures are most effective in presenting the problem of conservation to the public as a whole.

Demonstrations in soil and water conservation have been established in most of the important farming sections. To a large extent, each of them is a cross section of the agricultural lands for miles around.

The method employed in these demonstrations is to help land operators with the actual job of controlling erosion, conserving rainfall, and making the necessary changes in the pattern of land use. Agronomists, soil specialists, agricultural engineers, foresters, and other technicians combine their skills to attack the problem simultaneously along several fronts.

In setting up a demonstration area, the first step is to obtain a base map of the entire project. With the map as a guide, the technicians are able to draw up individual farm plans for each farmer in the area who is interested in adopting a conservation system. If the farmer decides to adopt the conservation plan finally worked out, he signs a cooperative working agreement with the Federal Government. He agrees to follow the recommended land use practices over a five year period and to contribute as much as possible in way of labor, power, seed, and materials toward the establishment of an effective conservation system.

One of the most important developments of recent years in the field of soil conservation has been the emergence of the soil conservation district as a mechanism for cooperative conservation action on a local scale by the users of the land themselves. Through these districts, established under state law, the facilities of the government, both state and Federal, can be brought most effectively into play in response of the direct demand of farmers and ranchers. The districts represent a significant development in bringing democratic processes to bear upon the problems of the land.

The object of these districts are, in general, to enable farmers to raise and maintain a suitable standard of living and to perpetuate agricultural resources within the district. More specificially, they are (1) to bring about the adoption of necessary practices for the conservation of soil resources (2) to make the adjustments necessary to a wise land use program, such adjustments being directed toward an increased income for individual farmers; and (3) to develop necessary land management practices such as would provide for the efficient utilization of extra feed and pasture resources resulting for the realignment of farm cropping systems.

The function of the district is to develop and carry out a program of proper use for all the land within its boundaries. The district itself may undertake to carry out the work; or it may request the assistance of the Soil Conservation Service and other agencies of the government. Actually the latter course usually is followed since districts, in the beginning at least, seldom have the facilities for extensive reorganization of land use.

From the standpoint of the country's soil resource alone, the need for action is now clear enough. Failure to act in the past already has caused the essential ruin or serious impoverishment of some 280 million acres of farm and grazing land. Now erosion is active on an additional 175 million acres.

There is no longer a question of the need for coping with these evils. There is no longer a question as to whether the nation can cope with them. We know that it can. Millions of acres already have been effectively anchored against erosion. New and practical measures are being developed continually through research and experiences on the land. Many of our economic and social difficulties on the land are beginning to be solved. We are moving constantly ahead though not yet with sufficient speed.

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LOW INCOME FARMS —

A CHALLENGE AND AN OPPORTUNITY

By JAMES N. YOUNG
Agricultural Economics, 1948

Farming is more than a business, it is a way of life. Only those who have experienced this way of life however,can realize its full significance. Any man who begins farming and looks upon his fields and flocks as just so much money in the bank is not only an ignoramus but a fool. He lacks absolutely the first essentials of a good farmer, namely the love of nature and a high regard for "The Good Earth."

To those for whom farming is nothing more than a "way of life," the size of the farm and the amount of income are immaterial. The incentive to plant, the thrill of seeing things grow, the job of reaping the harvest are all satisfactions that cannot be measured in terms of dollars and cents. In fact, in this situation a small farm and a low income have the advantage because one finds it difficult to admire a cow in the pasture if there's a Cadillac in the garage.

Since agriculture does present advantages as a way of life it is a mistake to believe that every farmer with a low income is weighted down with problems and burdens. Whether low income is the chief agricultural problem, therefore, depends upon the perspective or the attitude of the individual concerned and his essential purpose in being a farmer. We must admit, however, that a changed attitude is not a solution to the problems faced by all low income farmers since, after all, attitudes cannot pay taxes or put a sink in the kitchen. It is imperative that there must be a basic cash income, and desirable that it be adequate to maintain a high level of living on the farm.

To say that one of the problems of low income farmers is low income appears to be circular but is nevertheless a plain statement of fact. How can a farmer with insufficient funds accept even a generous "benefit payment" when it is contingent upon a small contribution from himself? How is it possible for a farmer with little land and less money to increase his opportunity to earn? This is another of those "vicious circles" where a man is handicapped because he has a low income and he has a low income because he is handicapped. "To him that hath not shall be taken away even which he hath."

There are some, of course, who dispose of the problems of low income farmers by saying that the trouble is with the farmer, that he is lazy, unambitious and undeserving of assistance or consideration. This is a serious charge and if it were true it would reflect discredit upon a very large group of our population. We know, however, that this is **not** true. Farmers in the low income group are just as concerned about their status and just as anxious to do something about it as any group in similar circumstances. Given equality in health, education and opportunity, a farmer will come as near raising himself by his own bootstraps as anyone in any other occupation or profession.

Low income farmers, however, do have problems, among the chief of which is the large number of people who live on them in relation to the land they operate. The **average** size farm in South Carolina, for example, is only about 75 acres and well over half of them are under 50 acres. When it is realized that only about one acre out of three is crop land and that the average crop land harvested per capita of the farm population in South Carolina is less than five acres, (as compared to 25 acres in Iowa and 15 acres in the United States as a whole) the question is raised as to how a decent standard of living is to be maintained on so small an area, assuming even maximum returns from every acre. During the last year before the war, one-third of the farms in this state were reported to have produced **total products** valued at less than $400.

According to one economist, we have in South Carolina "approximately one percent of the land area of the country, one percent of the land in farms, one percent of the crop land and less than one percent of the agricultural wealth, but 2.5 percent of the farms and 3 percent of the farm population." If we expect as much in proportion as the rest of the country, we will have to be three times as good. Remember this is an average figure. For many of our farmers the situation is even more hopeless.

Material increases in production and net income for South Carolina farm workers are largely dependent upon (1) more capital investment to provide more land, livestock, machinery, fertilizer, and other capital items per worker and (2) opportunities for non-farm employment for a larger proportion of the population than has found such employment in the past.

"Readjustments of this type will create opportunities for farm workers in the South to equal the per capita production and income of farm workers in other regions. But on many farms the change involves shifting from a simple cash-crop of farming with hand-and-mule operations, to relatively complex soil-conserving types of farming, that involve forage, pasture, winter cover crops, livestock, mechanical power, and larger farms, This kind of farming requires more management and more mechanical skill for successful operation.—This means that successful, modern farming requires less brawn and more brains than the farming of a generation ago, and that it takes a large capital investment to become established on the

(continued on page twenty-three)

THE REVIVAL OF THE CHESTNUT

CHESTNUT GROWING, ONCE AGAIN, AT PERIOD OF IMPORTANT DEVELOPMENT

By R. H. BOWERS
Horticulture, 1948

For the second time in its history, chestnut growing in America is at a period of important development.

The native American chestnut (Castanea dentata) which was once abundant throughout the Eastern United States, has all but disappeared from this country because of chestnut blight. Several European varieties (Castanea sativa) are still successfully grown on the West Coast.

Many Japanese varieties (Castanea crenata) have been developed, but the tendency was to stress size and appearance of nut rather than quality. Consequently the nuts were not favorably accepted on the market. Several of these varieties have recently come to light, which compare favorably with the best European or Chinese varieties, and are now being propagated by nurserymen.

The Chinese chestnut (Castanea mollissima) was introduced into this country during the early part of this century by the U.S.D.A. It is grown chiefly as a seedling tree. It is known for its hardiness, fruitfulness, resistance to blight, as well as the size and general character of the nut. About a dozen varieties have been recognized and propagated to some extent. About half of these are now available from commercial sources, as grafted trees. Difficulty of propagation has limited their distribution.

About sixteen million pounds of chestnuts are imported every year. Southern Europe's crop comes in about November the first, while Oriental nuts come in about a month later.

In America the ripening period begins in late August in Georgia and about a month later in Maryland.

Chestnuts tend to deteriorate rapidly regardless of how they are handled. The period during which they may be marketed and consumed is relatively short. A week or ten days is about as long as they may be held safely on a market stand without the use of cold storage.

The chestnut grows in most soils but good soil is important for the production of a full crop of first-grade nuts. It takes between eight and twelve years for a seedling to produce a full crop of nuts.

Most chestnuts are self-unfruitful, therefore it is important that more than one seedling tree or 2 varieties be planted to insure a good crop when the trees start to bear.

Harvesting should be prompt in order to prepare the nuts for market as soon as possible. It is also an important step in the control of certain pests that get on the nuts after they have fallen. The weevils, which incubate from eggs deposited inside the nuts, seem to be the greatest menace to the eastern chestnut industry. The only control method developed is orchard sanitation.

Two kinds of weevils, curculio proboscidens, F, and C. auriger (casey), both native to America, attack chestnuts. They lay their eggs in the nuts. As much as 90 to 100 percent wormy nuts have been reported for a specific season and locality. Until recently the only control method was orchard sanitation. Preliminary tests with the application of wettable 50 percent D. D. T. at the rate of 4 pounds to 100 gallons resulted in nearly 100 percent control. (A tentative spray program recommends 3 applications, the first approximately 30 days before the first nuts fall, and the second and third applications following the first at 12 day intervals.)

Present indications are that the best zones for chestnuts coincide closely with those for the peach, although it is probable that chestnuts may be grown both farther north and farther south than the peach. It has been found necessary, in certain areas, to protect the trunks of young trees from sun scald.

At present, there is much experimental work being done on the chestnut and there is good reason to expect new and better varieties to be developed. The government is restocking some forests with these resistant varieties, and perhaps in the near future there will be chestnuts in the American forests again.

LOW INCOME FARMS— A CHALLENGE AND AN OPPORTUNITY

(continued from page twenty-two)

size of farm that a family can easily handle from a labor standpoint. Some farmers will need new sources of credit to obtain farms of adequate size, and to buy livestock and equipment needed to operate them. Full time farms that are too small to utilize mechanical power effectively are also likely to be too small to provide a satisfactory living for a farm family."

Since it is apparent that mechanization, efficient organization, good management, high yields and a better balance between crop and livestock enterprises are goals which farmers must seek to attain, it is our responsibility as agricultural leaders, students, and others connected with this field to see that these goals are realized. For us it is both a challenge and an opportunity. We must overcome these factors that are responsible for low incomes and we must start now to do all that is within our power to remedy the situation.

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Ditching With Dynamite

(continued from page five)

placed at every third hole. The wide spaces between cross rows tends to leave ridges on the bottom of the ditch; therefore this type of loading should not be used for loads heavier than one cartridge per hole.

When ditches over six feet in depth are required, it is necessary to use a large number of cartridges per hole. This makes a single vertical column impractical, and large diameter holes are needed. This method of loading is called the Post-Hole Method, because post-hole diggers are commonly used to dig the holes in which the dynamite is placed. A ditch with bottom width equal to the depth and top width equal to three times the depth can usually be obtained if the load is placed between one-half and two-thirds the required depth.

If the surface is composed of heavy sod or root mat, the three methods named may produce undersized ditches. The simplest and most practical method of removing the pressure caused by heavy sod or root mat is by the Relief Method of ditch blasting. Auxiliary ditches are blasted on either side of the proposed ditch, thereby breaking up the surface and giving a much wider main ditch. The relief ditches are always loaded by the Single-Line Method, regardless of which method is used for the main ditch. When using the Relief Method, both relief ditches are loaded and separately exploded before the main ditch is loaded.

Test shots of approximately twenty-five feet in length should be made to determine if the amount of dynamite is correct.

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ALFALFA APPEARS IN STATE

HIGH YIELDS INDICATE POSSIBILITIES FOR SOUTH CAROLINA

By L. G. Reynolds,
Vocational Agric. Education '49

Alfalfa has the possibility of becoming one of South Carolina's leading leguminous hay crops. This plant has been the principal hay producing crop in the mid-western states for many years and at the present time is beginning to appear more and more on the farms of the Palmetto State. High yields from farms surveyed indicate major possibilities for this perennial legume.

The first requirement for establishing a successful alfalfa patch is the selection of soil having a pH range from 6.5 to 7.5. Soil samples may be sent to Clemson College for this analysis. The second major step in this program is the application of the correct amount of the proper fertilizers. South Carolina recommendations show that the appication of 400 to 800 puonds of 4-12-8 at seeding time. Before seeding, 4 to 6 tons of limestone with 1000 to 2000 pounds of superphosphate should be applied and worked in the soil. Each spring 400 to 500 pounds of 0-12-12 should be added as top dressing. The correct amount of plant food of the recommended constituents is by far the most important factor in the establishment of a profitable alfalfa crop.

The variety best suited to the soils and climate of South Carolina is "Common Kansas". This variety was developed in the non-irrigated areas of Kansas. Seed should be treated with Nitragin or some other suitable soil inoculent.

Alfalfa should be seeded between September 15 and November 15 at the rate of 35 pounds per acre.

This promising legume should be seeded with a grass seeding attachment on a grain drill for best results. If the seed is broadcast, cultipacker and a smoothing harrow should be employed to cover the seed to a depth of one half to one inch. However, it is essential that the seed bed be reasonably firm to insure a good stand. For the first year no cultivation is required because the plant roots are striving to establish themselves firmly in the soil. After the first cutting a special alfalfa spring harrow or a disc harrow set at half the angle required for heavy work should be employed to cultivate the crop.

This perennial should be cut when the basal shoots are one to two inches high. This may be in the bloom stage or before blooming begins. In a dry season, with plants yellow and stunted, alfalfa should be cut after the first rain.

The farmer must be careful never to cut his crop too late in the fall or new growth will be prevented before the first frost.

In the Piedmont section of South Carolina the average profitable life for this crop is three or four years with an average yield of three to four tons per acre. Generally the crop is cut three times per season, each cutting yielding about one ton per acre on the average of farms studied.

One of the outstanding farms surveyed was located in Anderson county. A ten-acre field was established three years ago and this season over three tons per acre has been harvested. This is an indication of what can be accomplished with this legume that has such a bright future in South Carolina agriculture.

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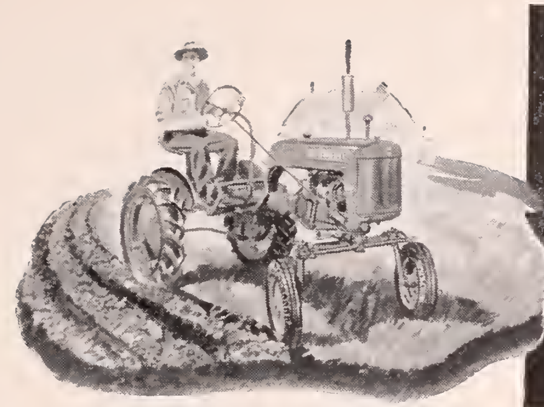

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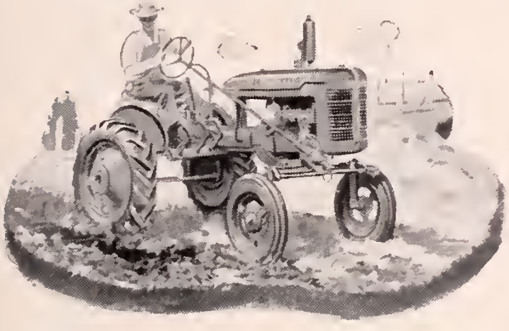

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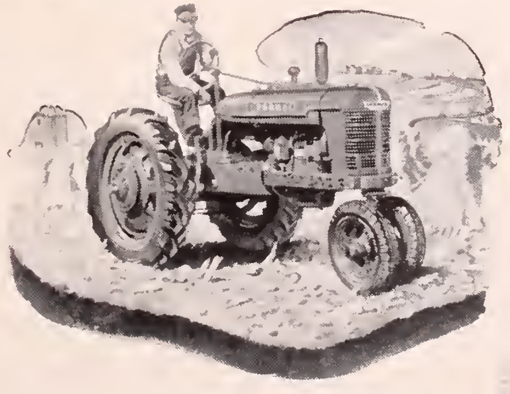

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DAFFY DEFINITIONS

Here's a column inspired by one of man's most fundamental motivations—his primitive urge to make a buck. And why not?—a buck's a buck. Get daffy, chums.

* * *

Synonym—the word you use when you can't spell the word you want.

Pedestrian—a married man who owns a car.

Hangover—the penalty for switching from Pepsi-Cola.

Snoring—sheet music.

* * *

You've really got us to the wall when we'll pay a buck apiece for these. But that's the deal. $1 each for those we buy.

GOOD DEAL ANNEX

Sharpen up those gags, gagsters! At the end of the year (if we haven't laughed ourselves to death) we're going to pick the one best item we've bought and award it a fat extra

$100.00

Little Moron Corner

Murgatroyd, our massive moron, was observed the other afternoon working out with the girls' archery team. Somewhat unconventionally, however—instead of using bow and arrow, Murgatroyd was drawing a bead on the target with a bottle of Pepsi-Cola. When asked "Why?" by our informant, who should have known better—"Duuuuuuh," responded Murgatroyd brightly, "because Pepsi-Cola hits the spot, stupid!"

$2, legal tender, for any of these we buy. Brother, inflation is really here!

HE-SHE GAGS

Know a He-She gag? If you think it's funny, send it in. If we think it's funny, we'll buy it—for three bucks. We'll even print it. Sheer altruism. Take ten—and see if you don't come up with something sharper than these soggy specimens:

She: Why don't you put out that light and come sit here beside me?

He: It's the best offer I've had today—but I'd rather have a Pepsi.

He: Darling, is there nothing I can do to make you care?

She: D. D. T.

He: D. D. T.?

She: Yeah—drop dead twice!

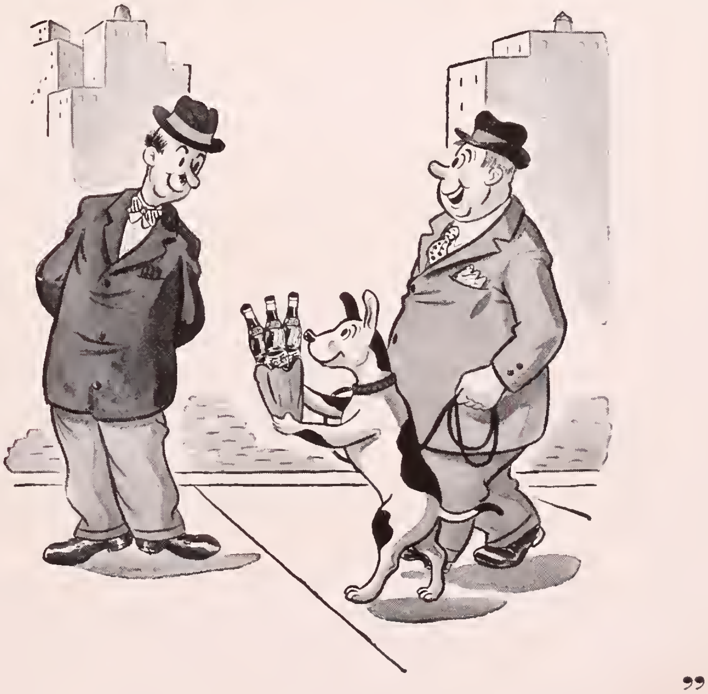
She: Right now I'm interested in something tall, dark and handsome.

He: Gosh! Me?

She: No, silly—Pepsi-Cola!

Yep, we pay three bucks apiece for any of these we print. You never had it so good.

Get Funny . . . Win Money . . . Write a Title



" -- "

What's the right caption? We don't know. You tell us. For the line we buy we'll ante $5. Or send in a cartoon idea of your own. $10 for just the idea . . . $15 if you draw it . . . if we buy it.

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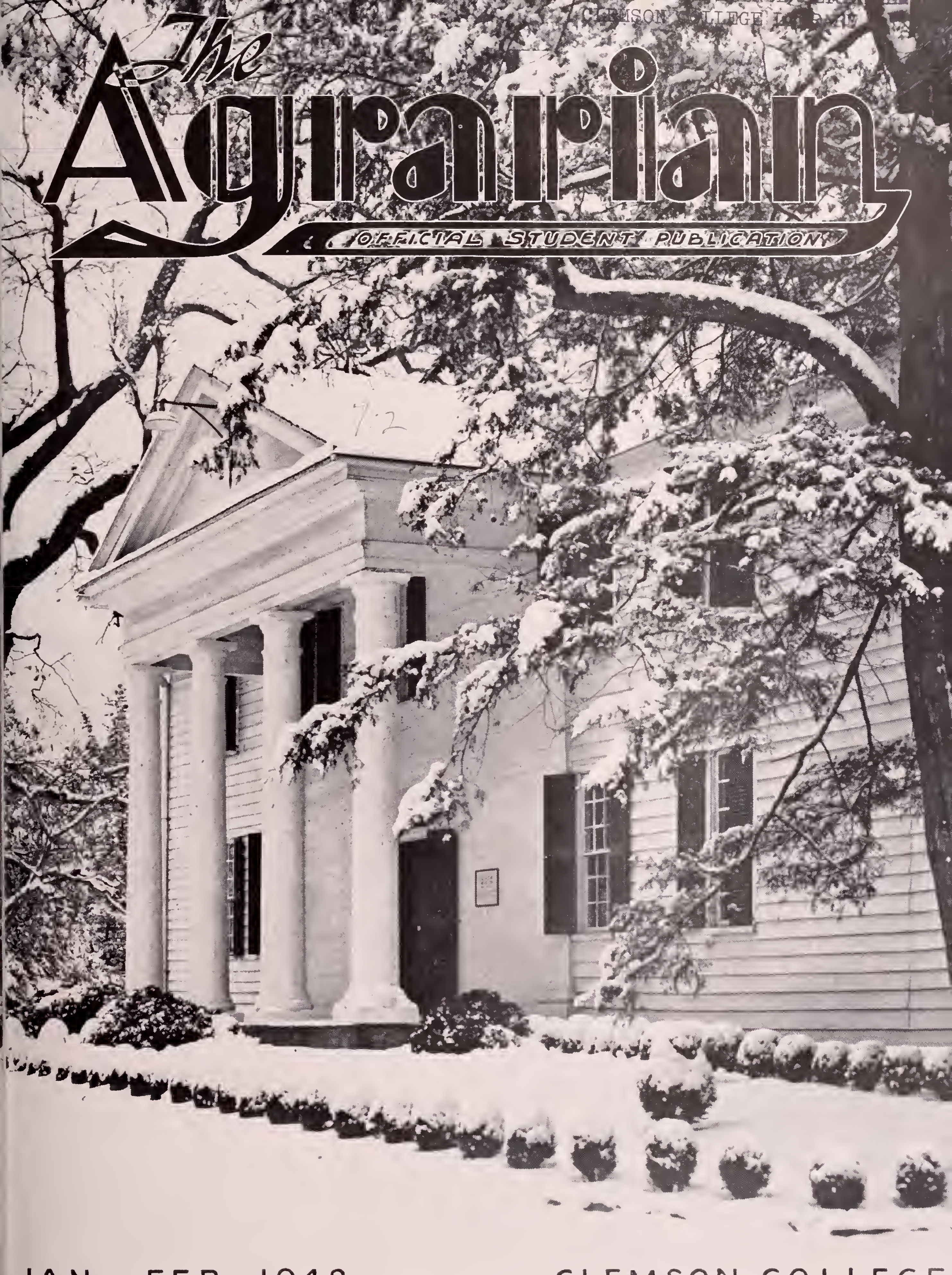
The Agrarian

OFFICIAL STUDENT PUBLICATION



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JAN. - FEB. 1948

CLEMSON COLLEGE

INTERNATIONAL SKI STAR
Blanche Christian agrees...
"Experience is the best teacher!
in skiing and in choosing a cigarette"
CAMELS ARE THE CHOICE OF EXPERIENCE WITH ME!
Experience—and perfect coaching—have taught Blanche Christian the finer points of skiing

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to a "T."

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MORE DOCTORS SMOKE CAMELS THAN ANY OTHER CIGARETTE

When 113,597 doctors were asked by three independent research organizations to name the cigarette they smoked, more doctors named Camel than any other brand!

The Agrarian

OFFICIAL STUDENT PUBLICATION

VOLUME 7 THE CLEMSON AGRICULTURAL COLLEGE NUMBER 2

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PICTURES on pages 4, 5, and 17 are through the courtesy of the South Carolina Agricultural Extension Service.

COVER — Snow scene of Calhoun Mansion located on the Clemson campus just across from Third Barracks. It was in this mansion that John C. Calhoun, United States Senator from South Carolina and later Vice-President of the United States lived for many years. Restoration of the mansion was completed in recent years by the United Daughters of the Confederacy.

It was Calhoun's son-in-law, Thomas Green Clemson, whose bequest made possible the founding of The Clemson Agricultural College. The land upon which Clemson College now stands was once Fort Hill, farm estate of John C. Calhoun and later Thomas G. Clemson who inherited it from his father-in-law.

Photograph taken by Lewis D. Moorhead, a graduate of Clemson.

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DEAN COOPER POINTS OUT

Opportunities In Agricultural Research

Improvements of Agricultural Methods in South During Last Two Decades Creates Opportunities

By H. P. COOPER
Dean, School of Agriculture and Director, S. C. Experiment Station

The agricultural research program in this country is unique. Our research activities consist of a central federal system administered from Washington, D. C., and individual state systems financed jointly by the federal government and the separate states. Our comprehensive agricultural research system has contributed to the development of the most efficient and effective agricultural systems in the world. The increased efficiency in our agriculture has resulted in a progressive decrease in the percentage of the population necessary to produce the food and fiber crops needed. At the present time less than twenty percent of our population is engaged in agricultural production.

The increased efficiency in agricultural enterprises is closely related to the power available for agricultural work. In certain primitive agricultural countries manpower is largely utilized in production activities. Other systems utilize oxen and horsepower.

The introduction of the modern automotive equipment has markedly increased the efficiency of farm labor and is resulting in the need of more research information necessary in the establishment of still greater efficiency in farm operations. The southeastern area is one of the last agricultural regions to depend largely on hand or simple agricultural equipment.

During the past fifteen or twenty years, or since farm equipment was put on rubber tires, there has been more progress in the mechanical operations on southern farms than in the past century. The passing of the old agricultural methods, the introduction of more farm equipment and the relatively heavy financial investments involved make it necessary to increase the efficiency of all agricultural enterprises.

Along with the introduction of the farm mechanization program and with relatively large capital investments, there is the desire for an agricultural research program that will provide research information for agricultural equivalent to that being made available to many of the large manufacturing industries.

Since the prevailing production unit in agriculture is the family farm, it is necessary for the agricultural research activities to be supported by government as it is not possible for the small units to develop adequate research information comparable to some of the larger industrial enterprises. In order to more adequately serve the farm interests, the federal government has made provisions for substantial appropriations to develop a comprehensive agricultural research program.

One of the limiting factors at the present time is securing well-trained research personnel to develop an adequate research program. The present high prices and the employment by the larger industries of a large proportion of qualified persons have created a serious deficiency of agricultural research scientists. There is a deficiency of adequately trained scientists in practically every field of biology and agriculture, and there will be many good opportunities for well-trained scientists for a long time as it will require many years to train all the research scientists needed in our agricultural program.

In the field of agricultural economics there are numerous problems needing special consideration with emphasis upon the financial problems of agriculture. Where the family labor operating with simple equipment is one of the major factors in farm production, it is customary to give relatively more consideration to the returns per acre than to labor income. The entire field of marketing of agricultural products will need the services of many trained agricultural economists.

The field of agricultural engineering will need the services of more agricultural engineers than are being trained at this time. Soil conservation activities and land utilization practices will need many men trained in such subjects as botany, entomology, agronomy and horticulture. The increasing importance of livestock enterprises in our agriculture will require the services of a large number of men trained in dairy, poultry and animal husbandry.

Since there is a shortage of trained scientists in practically every field of agriculture such as teaching, research, and the various commercial enterprises including marketing, fertilizer, insecticide, fungicide, and numerous other agricultural industries, there will be excellent opportunities available in this state and in the region for men trained in agricultural science.

PERMANENT PASTURES IN SOUTH CAROLINA

By Following These Directions Livestock Farmers In This State Can Increase Their Margin of Profit by Reducing Expensive Concentrates

By **LEWIS B. SMITH**
Agronomy 1949

Due to the rising cost of grains, protein supplements, and hay, the cattleman and the dairyman must seek to find a more economical source of feed to combat high-priced feeds which are now on the market. Although the farmer may have enough high-priced feed to take care of the cattle until the next harvest, it would be more profitable to sell the feed than to sell it in the form of cattle.

The more practical outlet for the farmer in this crisis would be the establishing of good permanent pastures. Many South Carolina farmers have no conception of what a permanent pasture is. In any county in the state, one may ask a typical farmer about his pasture and he will point out a rough plot of land half-covered with underbrush. After close observation, it becomes apparent that little or no fertilizers have been used; nor any special attention given to the variety of seed that was planted on the ill-prepared seedbed.

It's time the farmers of South Carolina "woke-up" to the fact that the pastures are going to be no better than the land they are grown on and the care that is taken before and after they are planted.

In establishing a permanent pasture, the following procedure should be considered. After carefully choosing the site for a pasture so that water and shade are accessible to the cattle, the farmer should have the pH taken. With this knowledge, he may apply the amount of lime necessary to bring the pH within an optimum range of between 6.0 and 6.5. The land should then be broken and a basic application of nitrate of soda, basic slag, and muriate of potash applied.

The amounts vary with the soil type, but recommendations may be secured from the county agents.

After the land has been disked and fertilized, the land should be packed with a cultipacker if available; otherwise a log will serve the purpose. This tends to improve the stand and helps young seedlings to stand the drought.

Securing the quality of seed and obtaining recommendations for the best possible mixture are two of the most important steps in producing good pastures. A pasture should include a grass that will establish a good sod, such as carpet grass, bermuda grass, or bluegrass. White dutch clover should be included in every pasture mixture in South Carolina because of its excellent nutritive value and its long grazing season. Dallis grass is another important pasture grass and should be given consideration when determining the mixture. There are other grasses and legumes which should be considered before determining a mixture. The farmer may receive advice and recommendations through his county agent and farm bulletins.

By following this outline the cattleman may establish a permanent pasture with a reasonably low initial cost, and with practically no overhead after the pasture has been established. With the increasing amount of beef and dairy cattle in South Carolina, permanent pastures will maintain a prominent place in the farm management program.

CONSERVE THAT SOIL

We Must Stop Soil Erosion And Start Now With Soil Conserving Practices to Insure Our Future

By **CLYDE R. ALLEN**
Agricultural Engineering 1949

The people of South Carolina are just beginning to realize the seriousness and extent of this state's erosion problem. While our population is increasing our farm land is steadily decreasing due to improper care and lack of attention. Our future, as has been our past, will depend chiefly upon agriculture. For an insured high standard of living for our posterity we must today strive towards erosion control. With the gradual increase in population more and more of our farm land will have to be converted into food producing land. With these things in mind let us undertake to explore the causes, types, and control methods of erosion in South Carolina.

The most common cause of erosion in South Carolina is rainfall. This factor presents our greatest problem as the annual rainfall in the south is greater and more intense than that in most other parts of the United States. Failure on the part of the farmer to carefully plan an effective crop rotation system and keeping the land covered as much of the time as possible, also leads to extensive erosion. In sections where row cropping is practiced on sloping land this should be given careful consideration. Another important factor of erosion is the high percentage of farms that are operated by tenants. It is only natural that they will not be as considerate of the soil as the owner. This assumption should encourage each land owner to give specific instructions to tenants in regard to land preparation and planting. It is also evident that soil with a low organic content is less permeable than soil with a high organic content; therefore, a special effort should be made to increase the organic content of the soil thus making it less susceptible to erosion.

In the piedmont section of South Carolina is found, sheet, rill, and gully erosion, all which are caused by an excess of water. Sheet erosion is the removal of topsoil fairly uniformly over an entire area. On unprotected areas of sloping fields the runoff water picks up soil particles that are agitated by the raindrops and carries them along down the hill. If the condition of the

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In foreground Kudzu corrects erosion and heals gullies that are shown in background.

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land is relatively uniform, the removal of soil is approximately the same from all parts of an area having the same degree of slope. The damage will not be noticed until the subsoil begins to show. This is sometimes called "insidious" erosion.

Sheet erosion leads to other forms of erosion unless areas of sheet washed soils are given complete protection, such as may be afforded by a change in methods of cropping. Small gullies a few inchs in depth and width often develop on unprotected slopes of recently cultivated soils. These gullies are known as **shoestring** gullies or rill **washing** and, if neglected, grow into larger gullies. As a rule, however, these tiny gullies are erased by cultivation. Rill washing is a transition stage between sheet erosion and gullying.

Gully erosion is different from sheet erosion in that gullying is the removal of soil from a tiny strip or belt down a slope. Any depression, however slight, down a slope may lead to the beginning of a gully. Loose, sloping soils gully rather easily when water is concentrated on them. A heavy subsoil intensifies sheet erosion under most conditions, but such a layer often checks the rate at which gullying takes place. Some clay soils crack into large cubical granules, which on being loosened by the water fall from the sides into the gully and are carried away by the current. Under this condition, gullies grow in width very rapidly.

There are three types of erosion found in the coastal section of South Carolina: (1) selective water erosion, (2) selective wind erosion. and (3) sheet erosion in some areas just below the sand hills. In the coastal section, sheet erosion caused by water is analagous to that in the piedmont region. As to selective water erosion; on sandy soils subjected to rains of severe intensity, the finer lighter particles of soil are carried away by a process of washing and straining, leaving behind the larger heavier particles. Thus, heavy sandy loam is sometimes changed to light sandy loam, or, perhaps even to sand. It is by this same process that strong winds strip sandy loam of its finer particles.

Vegetative practices are the simplest and most economical means of erosion control. They serve the purpose of conserving the soil and providing an income at the same time. Research and farm experience show little or no soil washing takes place on land that is completely covered by close growing crops and that on such land the soil is more permeable and the water as well as the soil, is saved. It is a good practice to grow close growing crops on the more sloping land on the farm and to grow row crops on the more level land. Lespedeza sericea and Kudzu are two of the most efficient erosion checking crops. If used extensively they could be a big factor in the answer to South Carolina's erosion problem. If vegetation proves unsuccessful in checking erosion then mechanical methods such as terraces, outlet channels, and structures must be resorted to. Mechanical practices are generally expensive compared with vegetation methods and they provide no income which is a disadvantage; but they are a necessity in some cases. In mechanical control of erosion training, skill, and experience are essential elements.

There are several sources of assistance available to farmers who are interested in practicing erosion control on their farms. A few of these are: The local Soil Conservation District, Extension Service, A. A. A., and the local high school agricultural teachers. Of these agencies and individuals, the Soil Conservation District will probably be able to offer more actual technical assistance, because each district has a "work-unit", consisting of specialists assigned by the Federal Soil Conservation Service to do this specific work. With a better knowledge of erosion and its control, the farmer can increase his yields and the same time do an all-important job of conserving the soil.

Old and New AGRARIAN Staffs

Shown above—left to right are: Sam McGregor, new editor, Bill Kennerty, retiring editor; and Leonard Reynolds, incoming co-editor.

AGRICULTURAL ECONOMICS CLASS TAKES TRIP

Farm Management Classes Visit Agricultural Industries in Georgia and Florida; Students Observe Modern Farming Methods Used There

By LEONARD D. REYNOLDS
Voc. Ag. Ed. 1949

One of the highlights of the semester for agricultural students enrolled in Agricultural Economics 302 is the field trip which enables the instructor to point out visibly to his class the things that have been covered during the actual theory periods spent in the class room.

Recently Dr. W. E. A. Husmann, Associate Professor of Agricultural Economics, conducted his Farm Management class on a three day tour of central and south Georgia and Northern Florida, where they observed, first hand, practices followed in certain types of agriculture.

The party departed from Clemson College early Friday morning, November 14, and traveled by way of Athens to Greensborò, Georgia. Many of the group saw for the first time on the road between Royston, Ga., and Athens, a cotton picker. There the group had the working mechanism of the machine explained to them. Greensboro, which is located in Greene county in one of the key sections of the dairy industry in the Peach state. Dairy products have become one of the leading sources of income for the farmers of our southern neighbor across the Savannah River. The Soil Conservation Service cooperating with the experiment stations of Georgia, has a pasture development project consisting of about twenty thousand acres of permanent grazing land. Extensive experiments are being run, to determine the best grass combinations for pasturage. These government owned pastures are used by the cattle owners to feed their stock for a small rental fee per acre.

A Co-op creamery was visited at Eatonton. The group saw where whole milk was delivered to the plant and the various processes that took place before the milk was used by the consumer. A large portion of the Eatonton Co-ops output is marketed in Atlanta which is the largest city in the southeast.

In Macon the party had an interview with one of the officials of the First National Bank of Macon. This firm is widely known for their Agricultural Credit department, one of the few that renders such a service to farmers. A firm representative explained the steps that a borrower had to take in order to obtain a loan from the bank and the steps the firm would take to insure their investment. The bank official also told the group the procedures that were followed in granting veterans' loans to former service men and women.

Dr. W. E. A. Husmann

Saturday morning an employee of the Armour Packing Company conducted the men on a very complete tour of their plant at Tifton. There the future farm managers saw the continuous process where the live animal enters the chute to the slaughter room and emerges at the end of the line in the form of smoked hams and T-bone steaks. Every part of the animal is utilized and nothing is wasted. Perhaps the most interesting part of the plant was the cutting room. There the animal is brought in on an overhead track and keeps moving all the while. At different stations along the line workers have a definite job to perform. There government inspectors grade the carcass with certain stamps and the beef and pork are placed in cold storage rooms.

The Tifton plant packs mostly local stock, the majority coming from the ranges of northern Florida and the counties of Georgia around Tifton.

The Clemson students visited the Georgia Coastal Plains Station at Tifton, Ga. Dr. George H. King, station director, greeted the party and explained to the group the things that his station was endeavoring to accomplish. Director King gave the class the scope of activities with the physical make-up of the station. S. A. Parham, head agronomist at Tifton, explained his work with peanuts and small grains. The agronomist gave the visitors from Clemson first hand information connected with the value of peanuts and peanut hay. An extensive discussion was held concerning hay making. Animal Husbandryman Southwell carried the visitors on a hasty tour of the livestock pastures and animal lots. He explained his experiments briefly with pasture and cattle. Mr. Southwell stated that the herd of registered Hereford cattle at Clemson was superior to those at his station.

Considerable work has been done in Valdosta with reforestation. Large numbers of slash and loblolly pines have been planted and are yielding

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returns to the owners through turpentine and naval stores. In Valdosta the South Carolinians were shown through a complete turpentine distillery. There the huge barrels of crude gum was brought in and weighed before they were dumped into the melting vats. The foreign materials were carefully removed and the turpentine emerged in different grades. There the finished product was placed in tanks and stored. Turpentine is graded by color. A different name is given to each color such as Nancy, Mary, Jack, etc. The gum emerges in solid form and is sold to powder companies for use in explosives. The director of the forestry co-op in Valdosta gave a very interesting and timely talk to the group on the necessity for preserving the forests of our country. According to the speaker large dividends can be reaped from relatively waste land by utilizing this soil to establish permanent forests which will increase the farm income and preserve the soil for future generations.

Group of students with Prof. L. M. Bauknight at Dr. Husmann's citrus farm in Florida. Left to right: C. E. Langston, W. H. Kennick, Prof. Bauknight, J. W. Green, S. B. Hunt.

While traveling through northern Florida the group saw the different kinds of cattle raised in the leading beef producing state east of the Mississippi. The stock producers of Florida have begun to cross their native stock with imported Brahma bulls. These natives of the country of India have the ability to withstand intense heat and pay little attention to flies. A much more palatable table product is the result. The grades produced by these crosses have much better carcasses and the packing houses report much higher dressing percentages over the scrub stock formerly used exclusively. Florida is one of the largest cattle producing states in the union.

During the war America's supply of tungoil from the East Indies was cut off. This brought about the necessity of seeking to establish a domestic supply after no other supply could be secured. One of these tungoil plantations was seen while in northern Florida and Dr. Husmann explained the procedures involved in starting such an enterprise. Tungoil is an essential ingredient for lacquers and varnishes because of its quick drying abilities. Even though there is much money to be made in this industry, the high cost encountered in initiating such a business makes it rather rusky for the average capitalist.

Late Saturday afternoon the students arrived deep in the citrus belt and visited a citrus canning plant. There the oranges and grapefruit is brought to the plant in huge trucks and emptied after being weighed into a huge conveyor. This conveyor takes the produce into the plant where it travels on a production line basis. After going through a series of machines it emerges in cans as orange and grapefruit juice and other products. Approximately one half of Florida's citrus is canned while the other half is marketed in other forms.

After a short delay the party was conducted through a packing shed where the citrus is washed, colored, graded, packed and shipped to all parts of the country. It was very interesting for the Clemson party to follow the oranges as they came in the shed from the groves and see them after a series of processes, placed in box cars to be transported to the different parts of the United States and the world.

The party head showed the group of students his groves and explained in detail the problems involved in establishing a paying grove.

Leaving Dr. Husmann's place the convoy returned to Clemson College by the way of Jacksonville, Fla.

New Agronomy Handbook Is Published

A new revision to the Agronomy Handbook for South Carolina was recently published by the Extension Agronomy Division and is now ready for distribution.

The most outstanding feature of the handbook is the series of fifty-four color photographs depicting plant deficiency symtoms resulting from lack of essential and rarer elements. These photographs were made possible through the Chilean Nitrate Educational Bureau, Inc., and are in full color thereby making possible the easy identification of the various elemental deficiency problems confronting our South Carolina farmers today. Most farmers are able to recognize typical plant symptoms resulting from deficiencies of nitrogen, phosphorus, and potash so these photographs are meant as an aid in identifying deficiencies of the rarer or "minor elements" which also play a vital and important part in plant and animal growth.

Other important additions to the Handbook include a section on crop statistics which is composed of tables giving the acreage, yield per acre, and total production of a dozen common crops from 1900 until the present time. There is also a table of average composition and Total Digestible Nutrients of the various feeds grown in South Carolina.

To keep up with the times the fertilizer recommendations for the different crops have been revised. The new recommendations are based on the most recent research and information available.

As stated in the foreword, "The Agronomy Handbook is intended as a ready reference for agricultural workers and farmers . . . . . It is designed as a contribution to more uniform agricultural recommendations for South Carolina".

In this capacity the new Agronomy Handbook has succeeded tremendously and the persons responsible for the editing and publication of it are to be congratulated upon their contribution to the agricultural industry of South Carolina.

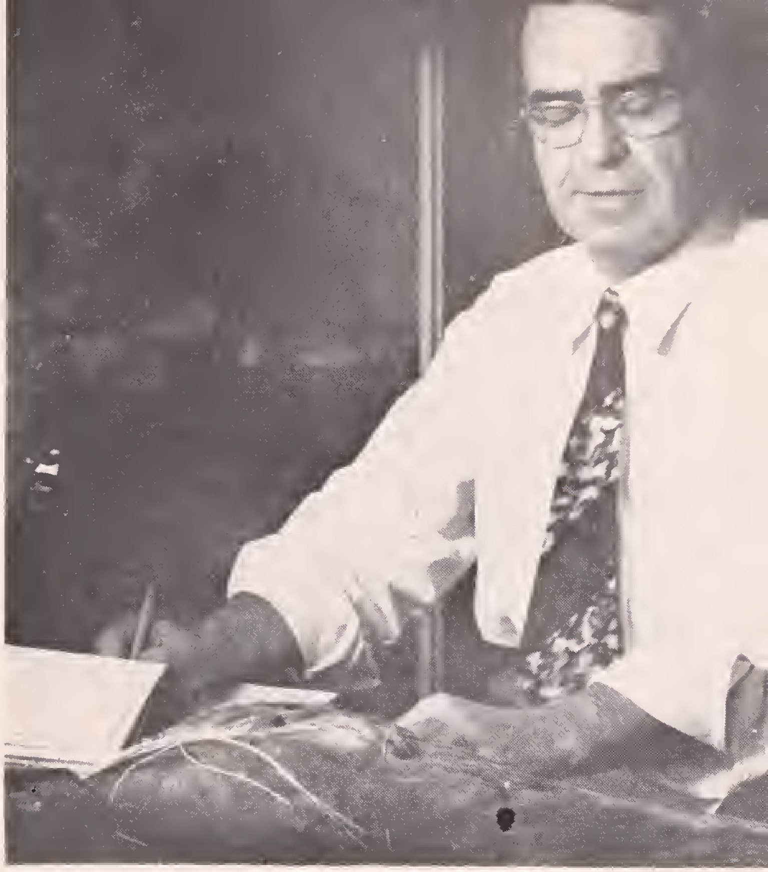
THE

AGRARIAN

PRESENTS . .

Robert E. Ware

And His Hobbies



By SAM E. McGREGOR
Dairying '49

Does it seem strange that a person who studies birds and is interested in their welfare and conservation should also have a hobby of collecting guns and cartridges with which birds are killed? Such may seem to be the case with Prof. Ware, Assistant Professor of Zoology and Entomology at Clemson. except that the guns he collects are definitely not used to destroy wild game.

Prof. Ware, who hails from a little town in southern Iowa, received his undergraduate degree from Iowa Wesleyan College and attended graduate school at Iowa State College. Before coming to Clemson in 1930 Prof. Ware was engaged in a number of occupations, one of them being in the Stock Exchange in San Francisco.

Prof. Ware started his gun collecting hobby as a young boy and at the present time his collection amounts to around sixty firearms as well as an immense assortment of cartridges of various descriptions and sizes. Even though they probably have a great monetary value he collects them only for his enjoyment and recreation. He has been offered various sums of money for several of his guns but as he said, "They mean more to me than money."

Some of these old firearms are history books within themselves. One such piece is a Remington cap and ball .44 caliber revolver which was given to him by an old prospector. He received this revolver in gratitude for food and clothes which he carried out to this old prospector while working in Death Valley, Arizona as a student. As related to Prof. Ware by the prospector, the revolver had been carried through three gold rushes and there is a worn place on one side of the barrel where it rubbed against the owner's leg.

The only heirloom in the collection is an old musket that his grandfather owned as a kid and which was passed down to Prof. Ware through his father.

One of the most interesting and perfect specimens is a rifle which was made specifically for him by an old mountain gunsmith from the hills of Tennessee. This rifle was made from the same materials, in the same way, and with the same tools as this gunsmith's father and grandfather gunsmith ancestors before him. It is an exact replica of the rifle used by his grandfather in the Revolutionary War.

These are just a few of the many interesting specimens owned by Prof. Ware, some of which are on display in his office. A very interesting afternoon can be spent around these same specimens by anyone who has the time.

Another hobby which Prof. Ware devotes his time to may seem to be connected with his work at the college but is also for his own amusement and is done in his spare time. This hobby consists in catching birds, banding them, and releasing them to be caught by other bird fanciers throughout the hemisphere.

Prof. Ware began his hobby of banding birds at Clemson in 1936. Recently the Boy Scout troop at Clemson became interested and is now helping him. At the present time he has banded over thirty-five different kinds of birds totaling around fifteen thousand individuals. The birds with which he does the most banding are Chimney Swifts and White Throated Sparrows.

(continued on the following page)

A Hasty Glimpse of An Amazing Industry

By T. C. CARTWRIGHT
Animal Husbandry 1948

To a half-scared country boy holding on to the seat of an elevated train and trying to peer out at the vast spreading city, it is easy for him to believe that the geography book he studied back in grammar school was right when it said that Chicago is one of the largest cities in the world. It becomes apparent to him that anything to be outstanding in this place must really be something. The only thing he knew about Chicago was that it was the meat packing center of the United States and he was a little surprised that it was about the only thing every Chicagoan knew existed in the windy city. The prominence of Packingtown, the name given to the location of the stock yards and packing companies, is more easily understood when it is learned that about three times more people are employed there than can crowd into Tigertown for a Clemson-Furman football clash.

Chicago is only the center of the industry. Taken as a whole, the meat packing industry is the third largest industry in the most industrialized country in the world. It nets billions of dollars annually. It is composed of over eight hundred different companies, and to thousands of American families it supplies fresh meat, butter, cheese, dressed poultry, and eggs daily. Realistic solutions to the many problems involved in distributing such highly perishable products have created an amazing industry, a vast, sprawling, topsy-turvy industry that produces buttons as well as T-bone steaks, that gathers its raw materials from small producers almost as numerous as the customers, that disassembles rather than assembles in its manufacturing process, and that functions of necessity with the precision and sensitivity of a Bulova watch in order to survive the whims of nature, housewife, and bacteria alike.

Of course, only a small percent of the industry is in Chicago, but it is the core of activity and the best place to get a birds-eye view of the methods employed in the meat packing industry. Before starting a journey through a packing plant, it may be interesting to go through the stock yards and see how the packing company buyers secure livestock. Practically all of the livestock shipped in by the farmers is consigned to a commission firm at the stock yards. The commissioner completely takes over the care of the animals shipped to him, and because of his contacts, his familiarity with sales procedures, and his knowledge of current livestock prices, the agent tends to secure higher prices for the farmer. The packers have closely coordinated purchasing organizations with specialized buyers for each type of livestock. These buyers move from one commission man to another making offers for certain pens of animals. If the offer is satisfactory, a sale is made by verbal agreement.

From the stock yards the animals are driven in chutes to the slaughtering pens of the purchasing company. For each type of livestock there is a different method of buthering. Every possible step is mechanized and when this is impossible butchers specialize in one particular operation and become highly skilled, working so deftly and rapidly that they seem to be mechanical devices themselves.

In hog slaughtering, for example, the live animal is started on an overhead chain assembly line hanging by a hind leg. First, he is stuck and allowed to bleed while on his way to the scalding vat. The chain takes the carcass through the vat and scraping machine in a continuous movement and then straight on through a room filled with several scores of workmen. These men stand at a certain point along the path of the chain and perform one operation deftly and expeditiously, because it is only a matter of seconds before another carcass is before him. At the end of the line clean, white carcasses file into the cooler at the rate of hundreds per hour.

To be shipped from one state to another, all meat must be inspected and passed by federal inspectors. In order to detect any animal unfit for human consumption, these inspectors work in the packing plant and examine the livestock at all stages of the disassembling process.

A tour through a packing plant gives only a glimpse of the many details and complications involved in the meat packing industry. But even a country boy, after such a tour, becomes aware of the fact that this is a most amazing industry.

The Agrarian Presents

ROBERT E. WARE

And His Hobbies

(continued from the preceding page)

The bands for the birds are supplied by the Fish and Wildlife Service in Washington, D. C., which is interested in the migratory habits of different species of birds. The bands have an identification number on them and when a bird is picked up the information consisting of the name of finder, address of finder, location of place where bird was caught, kind of bird, and the time of year, is forwarded to Washington. This information, after being recorded in the files there, is forwarded to the bander. There are close to two thousand people engaged in this hobby at the present time.

Birds banded by him have been picked up as far north as Manitoba, Canada, as far south as Haiti, and as far west as Arkansas. The area from which most of his birds are picked up is bounded by New Orleans on the south and Michigan, Ohio, and New York on the north.

One of the most interesting incidents which happened in this connection with this hobby occurred last year when a little bird commonly called a "Two-ee" was caught by Prof. Ware in his own back yard. It had been banded by him here at Clemson eight years before. It is very interesting to note that the bird came back to the same spot after eight years.

Prof. Ware who is noted in his classroom for his friendliness, his line of "bull', and his unpredictable quizzes is currently interested in animal parasites, fleas, ticks, and the like and recently obtained a new laboratory with which to carry on his work here at Clemson.

OUTSTANDING GRADS OF SCHOOL OF AGRICULTURE

In each class of graduates there are always a few who stand out among their classmates as outstanding either because of scholastic ability, leadership ability, moral excellence, personality, or other traits. We have selected four students whom we have observed as being outstanding in the Ag school. There are many more but we could not possibly characterize them all in the space we are allotted. We hope that these boys as they go forth from Clemson will maintain as fine a record as they have at Clemson.

T. C. CARTWRIGHT

Tom Cartwright came to us as a transfer student from Amarillo Junior College in September, 1942. While seving as pilot of a B-24 bomber in the Pacific Theatre he was captured by the Japanese and held prisoner for a month before he was released.

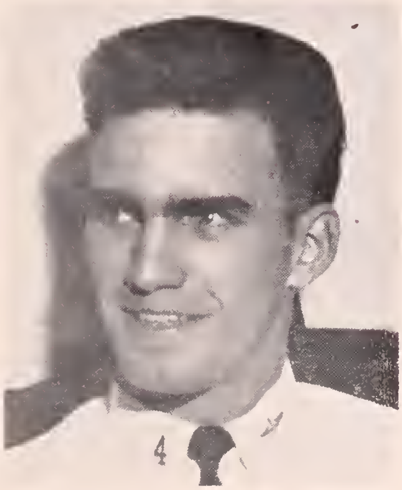
Tom is president of the Animal Husbandry Club and Chancellor of Alpha Zeta. He is also a member of Phi Kappa Phi. Recently he returned from a trip to Chicago which he won for his prize winning essay in the Swift Essay Contest.

He is married to the former Miss Carolyn Hobson and they have one child. After graduating he will have one day in which to travel to Texas where he is enrolling in the graduate school at Texas A&M to obtain his degree in Animal Breeding.

A. B. CARWILE

"A. B.", who is the only cadet portrayed, entered Clemson in September, 1942, only to be called to service in February, 1944. After serving for 19 months in the Air Corps, he was discharged as an air cadet, and returned to school in February, 1946.

He is musically inclined and is company commander of Band Company. A. B. is a member of Mu Beta Psi, honorary music fraternity, as well as president of Tiger Brotherhood, recording secretary of Blue Key, chairman of YMCA membership drive, and a member of the Senior Council, Alpha Phi Omega, B.S.U. council, YMCA Cabinet, and A.S.A.E.



A. B. is majoring in Agricultural Engineering and plans to go into the farm implement field upon graduation. It comes down to this writer that he is a firm believer in the Farm Bureau (from a social angle) and is just "crazy" about writing reports for Prof. Nutt.

W. C. KENNERTY

Bill Kennerty, who came to Clemson from that state in the low country, commonly known as Charleston, is one of the few journalists in the Ag school. He has been Feature Editor of the Tiger. Editor of the AGRARIAN, and is Sec.-Treas., of Alpha Gammu Mu, honor writers fraternity. Bill is also President of Beta Sigma Chi, and a member of the Horticulture Club, Newman Club, Sigma Phi, and the Ag Fair committee.

He entered Clemson in September, 1941 but was called to the Army in June, 1943. He served with the Engineers and spent a year in the Phillipine Islands before returning to Clemson in March, 1946. Bill is majoring in Horticulture.

D. C. SHARP

Don Sharp came to Clemson as a transfer student from the University of South Carolina after receiving his discharge from the Army. When he received his discharge he was company commander of a tank training company with the rank of captain.

While at Clemson Don has distinguished himself in several ways, one of them being his high scholastic record. He has made High Honors every semester and at time of publication his grade point ratio is 8.6. Not bad, eh? In addition to his scholasic record he is treasurer of Alpha Zeta, president of Kappa Sigma Epsilon, and a member of Phi Kappa Phi. He was selected for "Who's Who Among Students In American Universities and Colleges" and was on the staff of the AGRARIAN.

Don is a native of Allendale and is married to the former Camille Cunningham. They have two children. Upon graduation Don expects to farm in Allendale.

BETWEEN THE

CHEMISTS HONOR DR. COOPER

Dr. H. P. Cooper, Dean of the School of Agriculture and Director of the South Carolina Experiment Station was recently designated as "one of the ten ablest chemists and chemical engineers" in the United States working in the field of fertilizer research by the American Chemical Society bulletin.

Dr. Cooper was the only scientist from a Southern college or university to be selected in this line of research.

Dr. J. B. Hester, a Clemson graduate of 1926 in Chemistry was also honored. Dr. Hester is in the agricultural research department of the Campbell Soup Company in New Jersey.

NEW ENTOMOLOGISTS AT CLEMSON

Two positions in the Zoology and Entomology Department have recently been filled by two graduates of Clemson, both who received their degrees in Entomology.

Dr. James A. Cothran comes to us as Associate Entomologist in the South Carolina Experiment Station. He received his B.S. degree from Clemson in 1935 and his M.S. and Ph.D. degrees from Iowa State College. Dr. Cothran came here from the E. I. DuPont De Nemours Co., of Wilmington Del. He has considerable entomological experience and while at Clemson his work will be principally investigational research with insects affecting fruits and nuts.

Mr. E. H. Warnhoff, a native of Alexandria, Va., finished Clemson in 1946 and completed his graduate work and received his M.S. degree from Texas A. & M. College in August, 1947. Prior to coming to Clemson as Associate Professor of Entomology and Zoology, Mr Warnhoff was director of work with the White-fringed Beetle in the Bureau of Entomology and Plant Quarantine of the USDA in South Carolina.

FFA OUTLINES WORK

The Clemson chapter of the Future Farmers of America reorganized last semester and has already grown to be one of the largest ag organizations on the campus. It now has a membership of sixty active members and under its officers, Carl Lowder, President; Leonard Reynolds, Vice-President; J. G. Harris, Secretary; J. T. Black, Treasurer; C. C. Carter, Watchdog; John Green, Reporter. A program of work has already been outlined which is as follows: (1) sponsor parliamentary procedure team, (2) sponsor initiation team for awarding different degrees, (3) sponsor VAE exhibit at Ag Fair, (4) iniatiate a music program at meetings, (5) put on radio programs, (6) have reggularly planned meetings, (7) plan for recreation at meetings, and (8) co-operate with the state FFA program.

LATEST DEVELOPMENTS ON AG. FAIR

Most of the students have been in the dark about the Ag Fair and many rumors have been traveling over the campus as to the date and which schools are going to participate.

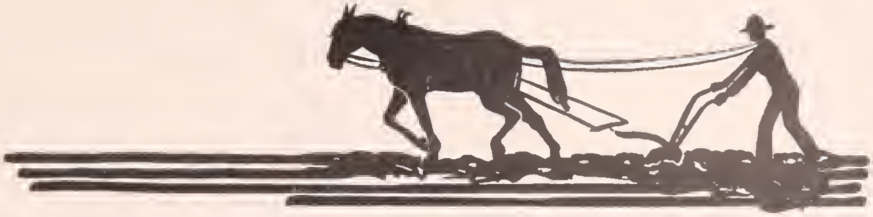
Here is the latest developments as quoted to us by R. M. Hanckl, Chairman.

At a meeting held recently with representatives from all the schools on the campus it was decided that we would have a fair with all schools represented.

SIMONS APPOINTED ASST. AG. EDITOR

Henry Simons, Horticulture, 1946, has been appointed assistant agricultural editor at Clemson.

He will handle administrative details for the state experiment stations, and for the School of Agriculture at Clemson. He is now located in the office with Mr. R. A. McGinty, Vice-Director of the Experiment Station.



FURROWS

ALPHA ZETA HONORS GRADUATES

Alpha Zeta honored its members at a banquet held on January 9 in the YMCA Cafeteria. Mr. A. B. Bryan made the after dinner address. Those members honored were T. C. Cartwright, Chancellor, D. C. Sharp, Treasurer, J. F. Chaplin, S. J. Hadden, J. E. Herlong, and B. R. Nicholson.

The local chapter has accomplished much this year. At the beginning of this semester the following new members were elected: A. S. Gramling, Orangeburg; J. M. Gulledge, Callison; Steve Lund, Exeland, Wis., William McKay, Hendersonville, N. C.; L. H. Moore, York; J. H. Rodgers, Charleston; H. V. Rogers, Cowpens; and A. W. Snell, Elloree. After a week of informal intiation the new members were formally initiated on October 16.

The next step taken was to elect Mr. B. D. Cloaninger, Secretary of the Board of Fertilizer Control, and a former student member of the South Carolina Chapter, to fill the position on the Advisory Committee left vacant by Dr. S. P. Marshall who resigned at Clemson to return to Florida.

Projects undertaken during the year include erection of a banner at Homecoming and beginning of a movement to reduce dishonesty among students in the Ag School.

CLEMSON GETS BUILDING FUNDS

Recently Governor Thurmond signed the bill authorizing the appropriation of a sum of money to be divided between the various state institutions for building funds. Clemson's share of this amounts to $1,300,000 which will go for a new chemistry building, a new hospital, and a new heating plant. All of these buildings are greatly needed on the campus and it was a wise choice indeed that the administration made when they designated the funds for these buildings.

ALPHA TAU ALPHA REORGANIZES

The Kappa chapter of the Fraternity of Alpha reorganized at Clemson this semester. The only pre-war member in school at this time was E. M. Rallings, so through him and members of the faculty the chapter was reorganized and at the formal initiation held before Christmas holidays the following members were iniatiated: C. C. Beam, J. T. Black, C. W. Derrick, E. B. Earle, C. E. Gambrell, R. A. Hall, G. J. Harris, S. P. Hunt, J C. Jackson, D. L. Johnson, J. P. Pickens, L. D. Reynolds, D. K. Stokes, B. Todd, S. O. Tomlinson, and M. P. Zuver.

The fraternity which was last active at Clemson in 1942, is a national honorary fraternity for students majoring in Vocational Agricultural Education. To be eligible for membership a student must have a high scholastic average, show qualities of leadership, and profess interest in carrying on vocational agricultural work upon graduation from college.

The officers for this year are: President, C. C. Beam; First Vice-President, S. O. Tomlinson; Second Vice-President, J. T. Black; Secretary, J. C. Jackson; Treasurer, E. M. Rallings; and Reporter, L. D. Reynolds. The faculty members are Dr. T. A. White, Mr. W. H. Washington, Mr. J. B. Monroe, and Mr. B. H. Stribling.

SOIL CONSERVATION SUPERVISORS MEET

On January 15-16 the annual meeting of the South Carolina Association of Soil Conservation Supervisors was held in Columbia. There were several out of state speakers at the convention. Among them were Dr. Willis A. Sutton, guest lecturer of the Education Department of Readers' Digest, and Kent Levatt, from Millbrook, N. Y., who is president of the National Association Soil Conservation District Governing Bodies.

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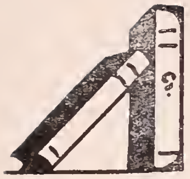

Agrarian Philosophy

By

The Editor

WHO'S CHEATING WHO

Cheating at Clemson College is nothing new. Former students tell us that in years past when they were in school here, practically the same situation existed then as does now.

If this is the case, then why the sudden uproar about dishonesty in the classroom???? This is the situation as it now stands.

Under the overcrowded conditions and shortages of faculty, cheating has reached an all time high. It has advanced to the stage with some members of the faculty as a "necessary evil" and a large percentage of the students have rationalized cheating to being "the only way to make a satisfactory grade". Some professors make it so easy to cheat and so many students take advantage of this opportunity that it actually works a hardship on the honest student. A student who knows all the "methods" is considered a "clever" student by the majority of the others in his class.

In this way the professors are cheating the students, the students are cheating the professors and themselves, and they are both cheating future employers of Clemson graduates. Who, then, is getting any benefits from this? The answer is **absolutely no one!!!**

This must be stopped if Clemson College is to maintain her high standing of which we are all proud. That means that we must all co-operate, students and faculty alike, to put an end to this degrading influence.

Here is a challenge to the organizations on the campus to make the first decisive move in this direction. Alpha Zeta is planning to iniatiate a move to reduce cheating in the ag school. Here is a golden opportunity for some of the clubs who have accomplished very little this year to co-operate with Alpha Zeta and bring "skinning" to a new low at Clemson rather than an all time **high.**

Let's us as future leaders in agriculture set a worthy example for the other schools at Clemson to follow. LET'S GET STARTED!!!

CLEMSON GRADUATE AWARDED MEDAL

Dr. E. H. Smith Ent. '38, was recently awarded a gold medal and cash award for a scientific paper delivered at the meeting of the Eastern Branch of the American Association of Economic Entomologists at Philadelphia. He was given the award as was Dr. G. W. Pearce for their paper, "On the Mode of Action of Petroleum Oils as Ovicides". This paper is largely a report on the effect of petroleum oil on the respiratory activity of oriental fruit moth eggs.

Dr. Smith, who recently became Extension Entomologist at Cornell University, is a native of Abbeville, S. C. While at Clemson he was very active in campus affairs, being a member of Alpha Zeta and numerous other campus organizations.

A FOND FAREWELL

When I was appointed editor of The AGRARIAN last spring I had no idea of the duties, responsibilities, trials and tribulations that confront the student editor, but after the remainder of the staff was appointed and work began on the fall issue each of us learned a little and by the time that we published the magazine, no one could convince us that we weren't The AGRARIAN staff to date.

However, without the help of "Big Ben" Goodale, Tom Millford, and other faculty members we could never have even gotten started. I would like to stop here and thank them and also each and every student who helped to make this publication a success.

In closing I wish to say that I hope my successor will meet with the same enjoyment that I had, and that The AGRARIAN will surge on to greater heights than ever before in the coming year.

—The Editor

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Opportunities of Aromatic Tobacco

The Results of Five Years of Experimental Work Indicate Possibilities of New Industry in State

By O'NEAL MILLER
Horticulture 1948

Imagine packing a pipe with sweet mellow aromatic tobacco and enjoying a pleasant smoke in the cool of the evening. You can imagine this now, and you can imagine still further that this aromatic tobacco is being grown right here in the Piedmont section of South Carolina. It's being done!

During normal times 50 to 75 million pounds of Turkish tobacco is imported mainly from Turkey, Bulgaria, and Greece for the manufacture of the various blends of cigarettes. During the war these imports decreased greatly. This aroused the interest of several experimental stations with respect to growing Turkish tobacco in this country. For a number of years the Department of Chemistry at Duke University has been conducting experiments at Oxford, North Carolina and Chatham, Virginia, involving cultivation, fertilization, harvesting, curing, storage, and fermentation with several varieties of aromatic tobaccos. Duke University has also conducted cooperative demonstrations with farmers in Oconee, Pickens, Greenville, and Anderson counties. After five years of experimental work and cooperative farm demonstrations, results indicated that certain varieties of Turkish tobacco could be grown with success in the Piedmont area of South Carolina. Because of its high labor and acreage requirement it is best adapted to small farms where sufficient labor is available. Since the results of trials mentioned above prove that it can be grown profitably in this area, a project was initiated at Clemson to determine the economic aspects, and proper cultural and curing procedure.

Turkish tobacco is distinguished from the other types of tobacco by small glandular hairs that protrude from the leaf. It is from these small hairs that an oil secretion is produced which gives the aroma to the tobacco. The density of these hairs per leaf area is influenced by heredity and environmental conditions. Any environmental factor which causes the plant to grow very vegetatively also causes the density of the hairs to be less, which results in a poor quality tobacco. In grow-

(continued on the following page)

Bales of aromatic tobacco being studied by Horticulturists at Clemson College.

(continued from the preceding page)

ing Turkish tobacco the growth of the plant should be controlled in order to obtain small leaves which possess as many glandular hairs as possible per leaf. In this way quality can be raised to a higher level.

In locating a seedbed, a soil should be chosen which is relatively high in organic matter, contains few weed seeds and disease organisms, is well drained, and near a source of water. The beds should be located on a south or southwestern slope in order to get the benefits of natural heat.

After clearing the plant bed area, the top soil should be pulverized, smoothed, and levelled.

The seed bed should be sterilized in September or October so as to eliminate weeds, diseases, and insects. This may be done with steam, by burning, or by chemical treatment.

After sterilization of the seed bed the fertilizer should be applied at least two weeks before seeding at the rate of two pounds of a complete tobacco plant bed fertilizer per yard.

The beds should be seeded between February 1 and March 1, using 1 to 1½ tablespoons of seed per 100 square yards. The seed should be mixed with cottonseed meal, fine sand, or sifted wood ashes, using one quart of such material to each teaspoonful of seed, in order to get uniform distribution of the seed.

In experiments at Clemson, tobacco cloth covers were used on the seed beds to increase the temperature and protect plants from unfavorable weather conditions. After a stand of plants was established in the field, the remaining plants in the beds were destroyed, and the bed was planted with nematode resistant varieties of cowpeas or soybeans.

A heavy and relatively poor soil containing mixtures of sand, gravel, or small rocks is desired for the best growth of Turkish tobacco. The field should have some slope which will afford protection against wind damage.

To fertilize Turkish tobacco, 4 to 8 tons per acre of well-rotted stable manure was used as a source of nitrogen. Superphosphate and potassium sulfate was used at the rate of 200 and 160 pounds per acre respectively. Large supplies of fertilizer will cause the plant to grow very vegetatively which will result in a decline of quality. To understand the underlying causes of this decline in quality with an increase in growth, we have to be reminded that in the Near East tobacco has been cultivated in soil of low fertility and very little rainfall.

Rows are laid off 20 inches apart and the plants spaced 4½ to 5½ inches apart in the row. According to these specifications, it will require approximately 60,000 to 70,000 plants per acre. The close spacing has a dwarfing effect upon the leaves of the plants which is favorable for quality.

In order to withstand transplanting, the seedlings should be hardened five to seven days before transplanting by removing the tobacco cloth covers. Transplanting is done with a hand transplanter which releases plant and water simultaneously. Plants are placed midway on side of the ridges approximately half the distance from the bottom of the ridge to the top.

The first cultivation is usually 10 to 15 days before transplanting. During this cultivation, the tops of the ridges are raked down away from the rows of plants. The second cultivation is carried on mainly to control weeds and to loosen the soil in order to get better aeration. In general very little cultivation is required during most seasons.

The first priming begins 40 to 45 days after transplanting. If maximum yield and quality are obtained, the leaves are harvested when they are quite green. Leaves showing yellow or any burning will be of light weight and poor quality. Priming should be done early in the morning before the dew has dried from the leaves. Never prime when the leaves are in a wilted condition as Turkish tobacco has to be strung and wilting slows down this operation.

Leaves are then strung onto a string with the use of a 14 inch needle and then tied to a bamboo stick. As soon as the leaves are properly arranged on the string, they are placed in a cool and shady place on racks so that the tobacco can yellow and wilt which will take from 36 to 72 hours. After wilting, the tobacco is placed on portable racks on castors and placed in direct sunlight for curing during the day time. These racks are moved inside a building at night and during inclement weather. It requires from 10 to 14 days to cure tobacco in the sunlight. At no time should the tobacco be exposed to dew or rain.

A shed with 200 or more square feet of floor space will be required to house one-fourth acre of tobacco. Approximately 700 square feet of white sand or concrete should be close to the opening of the shed upon which the tobacco is placed for curing. This place should be dry and free of grass and weeds, as vegetation causes a higher humidity and consequently delays curing of tobacco.

After curing, the tobacco is sorted in the barn on racks for baling during October and November. Great care should be taken during this stage to prevent molding.

Turkish tobacco is susceptible to diseases and insects such as blue mold, flea beetle, budworm, hornworm and nematodes. These diseases are controlled in the same manner as the diseases of flue-cured tobacco.

The following men have contributed much to the immense amount of work necessary in the establishment of Turkish tobacco as a new cash crop for Piedmont farms:

Mr. G. H. Griffen, County Agent of Oconee County, South Carolina.

Mr. J. A. Martin, Assistant Horticulturist, Clemson College

Mr. Donald Matheson, Assistant Tobacco Specialist, Clemson College

Mr. H. A. McGee, Extension Tobacco Specialist, Clemson College

AMONG OUR ALUMNI

1900

J. H. Kinsler has one of the largest cotton farms in Texas located at Austwell.

1905

H. W. Barre is in charge of Cotton and Other Fibers and Plant Diseases with the Bureau of Plant Industries in the USDA.

1908

M. J. Funchess has established his career with the Alabama Agricultural Experiment Station and is now Director. He is located at Auburn, Alabama.

Farmers Home Administration

This Federal Agency Has Provided Financial Aid For Farmers; Now Adds Veterans to Benefactors

By JAMES N. YOUNG
Agricultural Economics 1948

The Farmers Home Administration is an agency authorized by Congress for the purpose of giving aid to worthy and deserving farm families. It is an outgrowth of the Emergency Relief Administration established in 1933. However, there were many changes between the original ERA and more recent FHA. The ERA was superseded by the Resettlement Administration in 1935 and Rural Rehabilitation Loans were made through that agency. The Farm Security Administration was the result of further reorganization in 1937 at which time the Tenant Purchase phase was added. On November 1, 1946 the functions, assets and liabilities of the Farm Security Administration and Emergency Crop and Feed Loan Division of the Farm Credit Administration were merged by an amendment to the Bankhead-Jones Farm Tenant Act of 1937. Out of this merger the Farmers Home Administration was formed as an agency within the U. S. Department of Agriculture. Farmers having loans outstanding from either of the two predecessors agencies, as well as other eligible farmers are now served by the FHA.

The chief aim of the FHA is to give aid and assistance to agricultural families. It accomplishes this in part by helping deserving farmers climb the agricultural "ladder" to farm ownership. The successive rungs of the agricultural "ladder" are usually thought of as farm laborer, share cropper, share tenant, cash renter, and finally farm owner. It must be kept in mind, however, that some farmers are not qualified or desirous of becoming land owners. Also the "ladder" may be descended as well as ascended.

In addition, the FHA assists farmers by lending operating capital to both landowners and tenant farmers. This has been a great asset to the farmers in the past. For instance, records show that farmers on relief ten years ago now own their own farms. Because of inflated farm prices and the large increase in the cost of land a considerably smaller amount is now being invested in this phase of the FHA program.

Two types of loans are made through the FHA, namely; (1) production and subsistence, and (2) farm ownership. All loans of either type have to be approved by a county FHA committee composed of three persons including two farmers, but no FHA borrowers.

Production and Subsistence Loans

Any farmer or stockman is eligible for a production and subsistence loan if he (1) is an American citizen, (2) operates a farm not larger than a family farm, and (3) is unable to obtain credit from other sources on reasonable terms and conditions to finance farm and home needs. Applicants must certify in writing that they cannot obtain needed credit elsewhere.

Individual loans may be made to enable two or more farmers to acquire jointly, equipment or facilities such as purebred sires, machinery, storage facilities, and food preservation equipment, which they could not otherwise obtain or use individually on an economically sound basis. Individual loans also may be made for the purchase of membership in established purchasing and marketing and farm service type cooperative associations.

Production and subsistence loans bear 5 percent interest and are repayable in from one to five years. If loans are to be repaid within one year, a farm and home plan is not required. The period for repayment may be extended to 15 months for loans to purchase or feed livestock. If repayment is not anticipated within 12 or 15 months, as the case may be, a farm and home plan outlining detailed farm and home operating plans including financial activities is prepared. The borrower family makes the plan with the technical assistance of the County FHA supervisor. Loans must be paid within 5 years in order for borrowers to receive further credit. No more than $3,500 can be loaned to an individual during any one fiscal yar, and this total outstanding indebtedness for all such loans may not exceed $5,000 for any borrower.

Such loans as these are made to enable eligible farmers to make adjustments in their farm and home operation, for the production of cash crops, the purchase of growing of feed for livestock, etc. "Adjustment" loans for purposes other than routine annual operating expenses are based on sound farm and home plans developed with the families. Borrowers are provided with on-the-farm supervision or guidance as is necessary to assist them in carrying on successfully their planned operations. The determination as to the type and extent of assistance to be provided an applicant is made after consider-

(continued on the following page)

(continued from the preceding page)

ation of his individual needs, proposed operations, and other related circumstances, including recommendations by the county FHA committee.

Whenever a borrower becomes eligible for private or cooperative refinancing of his loan, at prevailing terms and at interest not exceeding 5 percent, he will be required to apply for such credit and, if granted, use these funds to repay his FHA indebtedness.

Farm Ownership Loans

The second type loan is the farm ownership loan. Tenants, sharecroppers, farm laborers and other persons, including owners of inadequate or under-improved farm units, who obtain or recently obtained the major portion of their income from farming operations are eligible if (1) they are American citizens, (2) they cannot get credit at reasonable terms anywhere else, and (3) they are known as good farmers, capable of managing farms of their own. Farm ownership specialists are sent out to see about the potentialities of the farm. At present there is one farm ownership specialist in South Carolina. U. S. war veterans who have received discharges other than dishonorable are eligible if they intend farming as a principal occupation and if they meet the requirements as to experience, training, character and other assurances of success.

The loans are made (1) to buy family-type farms, (2) to enlarge undersized farms, and (3) to improve or repair undersized or underimproved farms when such refinancing is incidental to the main purpose of the loan.

The loans—except those to disabled war veterans—are made only for efficient family-type farms. A family-type farm is one which furnishes full, productive, year-round employment for an average farm family and one which an average farm family can operate successfully without employing outside labor except during brief peak-load periods at planting or harvest time. War veterans receiving disability pensions, however, may qualify for loans on farms which are less than economic family-type units; farms of this type must afford the disabled veterans opportunity to make full use of their farming capabilities.

The farm ownership loans are limited to farms which have a value, as acquired, enlarged or improved, not in excess of the average value of efficient family-type farm management units in the county or locality as determined by the Secretary of Agriculture. The top limit on any such loan is $12,000.

The loan bears three and one-half percent interest and is repayable over periods of not more than forty years. Borrowers may repay on a variable payment plan, paying more in years of high income and less in years of low income.

Whenever a borrower becomes eligible for private or cooperative refinancing of his loan, at prevailing terms and at interest not exceeding 5 percent, he will be required to apply for such credit and, if granted, use these funds to repay his FHA indebtedness.

Certain special assistance is given to veterans. Veterans' applications for Farm Ownership loans are given preferance over applications of nonveterans, as required by the FHA Act. While there is no similar provision in the law with respect to production and subsistence loans to veterans, they are eligible for such assistance, and their applications are given careful and prompt consideration. Special provision also is made for assisting disabled veterans who are able to do some farm work but cannot carry on a normal family-type farm operation. Disabled veterans may qualify for either production and subsistence loans or farm ownership loans.

The FHA program seems to be one that has been and can be very beneficial to the underprivileged low income farmers. For those farmers that are deserving and desirous of owning and improving their farms this act has, no doubt, done a great deal toward helping them to achieve a greater degree of success in their farming operations. It must be observed, however, that the program has been "tested" largely during a period of rising prices. Had it, for example, begun operating in 1919 or 1929 the results might have been different. Certainly the present is time for caution in making farm loans.

The writer is indebted to Mr. Lewis D. Malphus, former FHA employee and now of the Agricultural Economics Department at Clemson College, for many of the facts presented in connection with this article.

Noted Indian Economist Visits Clemson

Jaswant Singh, of Punjab, India, spent two days on the Clemson College campus recently in connection with a projected tour throughout most of the southern states.

Mr. Singh, who was a guest of Dr. G. H. Aull, head of the Department of Agricultural Economics has a Master's degree in psychology and economics from Punjab University in Lahore, and is now working on a Ph.D. at Michigan State College.

He plans to return to India in September to assume a vital role in the government of his country as an advisor on matters pertaining to economics, agriculture, and education. He has spent two months in Washington, D. C., and has visited several projects of the Tennessee Valley Authority.

Mr. Singh describes conditions in India as very bad in some respects. In a country which, because of its diverse climatic conditions ranging from temperate to tropical, and its almost total lack of soil erosion, can grow practically any vegetable or fruit crop, farming is retarded by primitive methods, virtual absence of machinery, and a traditional law whereby the real estate holdings of a deceased land owner is divided equally among his sons. Mr. Singh plans to help to relieve these and other ills when he arrives home.

The Indian economist liked Clemson's campus very well, but deplored the scarcity of eligible females. He is an avid football fan, and especially likes Chappius of Michigan.

Mr. Singh is married, but his wife has remained in India during his trip.

FUTURE FARMERS OF AMERICA

This Organization of Farm Youth Has Risen to Outstanding Heights; S. C. Students Receive Training That Will Be Helpful in Later Years

The Future Farmers of America is a national organization composed of boys enrolled in courses in vocational agriculture throughout the United States and its territories.

By LEONARD D. REYNOLDS
Vocational Agric. Education 1949

These farm boys began to feel a sense of comradeship shortly after the National Vocational Education Act was passed in 1917. Within a short while after Congress passed the act, "agricultural clubs" began to be formed in Virginia, South Carolina, Tennessee, North Carolina, Oklahoma, and California. As these clubs began to be organized in the early '20's a number of names were used by these agricultural groups. Virginia is recognized as the first state to use the title **Future Farmers** for their organization.

As soon as a majority of the states had a state organization, the farsighted leaders in vocational education visualized the idea of having a national body and worked diligently toward that end. The individual states were in a very receptive mood because the state groups saw the need of a closely knit society which had the same aims and common interest in mind. When the first national convention was called in November of '28, the states cooperated whole heartedly and the Constitution for the Future Farmers of America was written. From this gathering, a national organization was born. From a rather modest birth, this brain child has grown and is continuing to grow into a world wide group.

The Future Farmers of America hold their annual convention in Kansas City, Missouri, unless the board of advisors deem it unwise to have their national get-to-gether. For many years, the gathering was held to coincide with the American Royal Livestock Show. However, in the future this will not be so. At the last national convention, the group voted to separate themselves from the American Royal because of the acute housing shortage that existed in Kansas City. In the past, the national Future Farmers judging contest was held at the Kansas City Royal and many of the visitors were unable to secure lodging because of the crowded conditions.

At the American Royal, the Future Farmers entered their livestock in the shows and many valuable prizes were won. Usually, the top steer was bought, at premium prices, by one of he major packing houses for advertising purposes. At this national show, the outstanding chapter members from all parts of the country gain the recognition they so justly deserve.

When a boy enters high school and begins his study of vocational agriculture, he is given a chance to join the local chapter of the Future Farmers of America. This automatically qualifies him for initiation as a qualified Green Hand. After this iniation, the club member is encouraged to work diligently and carry out the requirements for his State Farmer Degree. This can only be obtained for outstanding achievement and is awarded at the Annual State Convention. However, there is one more step to the top of the recognition ladder. Should a student be ambitious and capable, a hard worker and carry out the proper program of work, and accumulate various types of capital, he may be put in the national spotlight by being awarded the coveted American Farmer Degree. This is the highest honor that can be attained by a member of an F. F. A. chapter. Many strive to attain national recognition; however, few succeed.

Future Farmer camps play a large part in the social and recreational activities of America's farm youth. Each summer, many thousands of young men attend these resorts, usually located near some scenic attraction. Many of the chapters have athletic competition on a highly organized scale. Regular teams for competitive play are had in some major sports.

South Carolina was one of the first states to take a forward step in the organizing of her youth. The Palmetto State was one of the first states to organize agricultural students into vocational agricultural clubs. From these clubs grew the Future Farmers of South Carolina. Since that initial attempt, a large and closely knit body was developed. According to a recent report, we have nearly 6,000 students enrolled in vocational agriculture in South Carolina. Of this number, 5,043 are members of the F. F. A. in good standing and many more are expected to join before the present school year is terminated. These members are affiliated with chapters who have paid their annual dues.

At the present time, the chapters of the state are being organized into Federations. A Federation consists of a number of chapters that work

(continued on page twenty-three)

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Manufacturers, Wholesalers & Retailers
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COLUMBIA, SOUTH CAROLINA

FUTURE FARMERS OF AMERICA

(continued from page twenty)

together on different projects. In this way, a much closer knit unit is created to handle various special assignments and through such closely knit units, much more can be accomplished for the good of the area covered. These Federations sponsor fairs, judging contests, livestock shows, livestock chains and various activities that are beneficial to the students of vocational agriculture.

Last year in the state of South Carolina, five purebred livestock shows were held in connection with the Future Farmer Livestock Improvement Program. The Clemson Agricultural College has been stressing for a number of years the need of purebred breeding stock in successful animal work. The teachers of vocational agriculture in South Carolina have stimulated intense interest through their respective F. F. A. chapters and a large number of purebred livestock have been raised in the supervised practice work of the chapter members. The Sears-Roebuck Foundation recently gave fifty purebred Hereford bulls to the State organization, which were given in turn to the various Federations for distribution to selected chapter members. These future herd sires were selected for the Sears-Roebuck Foundation by Mr. R. R. Ritchie, Associate Professor of Animal Husbandry at Clemson College and Mr. F. E. Wells, Vocational Agriculture teacher at Sumter. S. C. Before a boy was selected to receive one of these valuable animals, he had to prove to the satisfaction of the investigating committee that he had ample facilities to house and feed the animal and that proper care would be given the prize bull. Each Federation in the state was given an alloted number for distribution to the winning boys. It was the aim of the donors to try to place these animals in as many communities as possible, to build up the beef herds of these areas.

Another highlight in Future Farmer activities is the annual South Carolina State Fair. The fair association has set aside a special day in honor of the Future Farmers and the members of their allied organization, the Junior Homemakers. All Future Farmer entries are judged and attractive prizes are given to the winnrs.

Here, in South Carolina, the F. F.-A. Cooperative Association has been formed to handle farm and garden seed, feed, and other farm supplies for its members. Here many dollars are saved for the group each year. Plans have been formulated to handle other commodities that will be of even greater saving to the members of the cooperative.

According to information from the South Carolina Department of Education, three of four Future Farmer camps will be operated during the summer months. Here each chapter has an opportunity to enjoy a short vacation in a cultural and healthful environment. Usually, camps are provided with all sorts of recreational facilities for the visitors. During the emergency created by the war, the government took over the Future Farmer camp at Murrell's Inlet. As yet, the camp is still under government lease, but the agriculture teachers hope that the camp will soon be returned to the Future Farmer organization. This recreational spot is nestled in a grove of pines that provide excellent shade for the front of the main building. The back overlooks the inlet, which furnishes a most beautiful background. Brookgreen Gardens, Myrtle Beach, State Park and many other places of interest are within relatively short distances of the camp. Another Future Farmer Camp is located at Bluffton, only a short distance from Savannah, Georgia, on the Moy River. This splendid resort furnishes excellent fishing, swimming and other camp activities. Near the Sandhill Experiment Station is located a third camp used by the vocational agriculture students. The fourth camp owned by the F. F. A. is located above Walhalla in Oconee County at Tamassee. This scenic spot gives the campers a chance to enjoy healthful activity in the foothills of the Blue Ridge Mountains. Nearby, is Oconee State Park where superior swimming facilities are found and enjoyed by many.

South Carolina Future Farmers held their annual convention last summer at Clemson College. The delegates enjoyed their stay at the institution to the extent that they voted in favor of selecting Clemson as their permanent convention site.

A collegiate chapter of the Future Farmers of America has been organized at Clemson for a number of years for the men enrolled in Vocational Agricultural Education. It is the primary purpose of this group to give to its members experience in conducting Future Farmer meetings in the prescribed manner and to train them to be good chapter advisors. This is of supreme importance to the future of the Future Farmer program. Without good leaders, any program will falter hopelessly and fall; therefore, well trained teachers are needed to assume responsibility of carrying on the work that has made the Future Farmers of America prominent in the eyes of the leaders of agriculture in America.

Upon the shoulders of these prospective teachers, rests the responsibility of developing the youth of the south into progressive farmers who will follow the farm practices and will preserve the agricultural resources that we have today and give to future generations the heritage of better agriculture in South Carolina and the South.

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AMONG OUR ALUMNI

1912

J. T. Lazar is working with the South Carolina Extension Service at Florence as District Agent.

1913

F. H. Lathrop is Entomologist with the Maine Expriment Station.

1917

E.D. Kyser is Superintendent of the Coastal Experiment Station at Summerville, S. C.

M. J. Lemmon has varied slightly from his major, Agricultural Chemistry, and is now Chief Surgeon at Jefferson Medical College and Hospital in Philadelphia, Pa.

J. H. Moore, who came to Clemson on a scholarship for making the world's record in corn production, is now Cotton Technician with the North Carolina Experiment Station at Raleigh, N. C.

T. S. Buie is now Southeastern Regional Director of the Soil Conservation Service, at Spartanburg, S. C.

1920

R. F. Kolb is Director of Farm Security Administration in Columbia, S. C.

1921

Rev. E. F. Getteys is Superintendent of John de la Howe School, McCormick, S. C.

1922

R. E. Carter is the owner of Carter Lumber Co. in Ridgeland, S. C.

James L. Harvin owns the Harvin Ice Cream Co. in Lansing, Mich.

1923

Ralph W. Coarsey is manager of Reigeldale Dairies in Trion, Ga.

John M. Dunlap is the owner of Cleveland Ice Cream and Milk Products Company.

1924

J. P. Gaston is running a dairy farm at Richburg, S. C.

1925

G. E. Hawkins, Sr. runs a dairy farm at Greenwood, S. C.

W. C. Huffman, who roomed with G. E. Hawkins, is a turkey breeder at Newberry, S. C.

1926

Dr. John M. Fleming established his profession in the medical field and is now a baby specialist at Spartanburg.

J. R. Paulling, Jr. decided he liked agronomy better than dairying and is now Extension Specialist in Charge of Field Crops at the University of Missouri.

1927

C. T. Smith and A. C. Haskell are dairy farmers. Smith is at Kinards and Hasklll is located at North Augusta.

1928

L. W. Shelley taught at Clemson for several years and is now located at Columbia where he is part owner in Jefferson Mortgage Co.

T. F. Cooley was Assistant Dairy Specialist in South Carolina for several years and is now manager of Klondike Farms, Elkin, N. C.

1929

Coy R. Cook is Assistant County Agent in Wilmington, N. C.

R. W. Dickson manages the feed division of Lindsey-Robinson Milling Company, Roanoke, Va.

1931

M. C. Rochester obtained his Ph.D. from the University of Wisconsin and is now connected with the Agricultural Extension Service at Clemson as Agriculturist Economist.

J. L. Fulmer obtained his Ph.D. from the Unversity of Virginia and is teaching Economics there.

D. D. Lee is Sheriff in Dillon County where he is also farming, in the farm implement business and owner of the airport there.

1935

G. H. Stewart is Extension Agricultural Engineer at Clemson.

1936

E. K. Rambo, on leave from Arkansas Extension Service, is Agricultural Engineer with Office of Foreign Agricultural Relations in the Panama Canal Zone.

G. H. Rankin, one of Clemson's few graduates in Forestry, is a major in the Army and is now doing graduate work at Syracuse University.

Maxey Chapman is stationed at Camp Lejeune, N. C. as a lieutenant colonel in the Marine Corps.

1937

J. J. Moorman holds the rank of a major in the Army and is stationed at Alexandria, Va.

Ben T. Lanham, Jr. is now Associate Professor of Agricultural Economics at Alabama Polytechnic Institute, Auburn, Ala.

1938

H. H. Kinney manages the Pee Dee Electrical Corp. at Wadesboro, N. C.

BARNETT
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Compliments of
HOKE SLOAN
"A Clemson Man Serving Clemson Men"

EASY MONEY DEPARTMENT

We can't figure out whether we're soft-hearted or soft-headed. Anyway, Pepsi-Cola Company pays up to $15 for jokes, gags and stuff like that there for this page. Below we list some of the characters who hit the jack-pot in September. What have they got that you haven't got? Right—Easy Money!

So climb on board the gravy train now. Send your gags, with your name, address, school and class, to Easy Money Department, Pepsi-Cola Co., Box A, Long Island City, N. Y. All contributions become the property of Pepsi-Cola Co. We pay only for those we print. (Getting "Pepsi-Cola" into your joke may not keep that rejection slip from your door, but it might help. Who knows? Certainly not us!)

LITTLE MORON CORNER

Dubious Dave "Michaelangelo" Moron, the would-be artist who never believed what people told him, was discovered one day pouring Pepsi-Cola on his paint board. "They told me it would tickle my palette," he exclaimed, scowling fiercely, "but so far I haven't heard a single laugh!"

The two bucks for this classic went to William D. Blair, Jr., of Princeton. What could be simpler, if anything? Send in your Moron gags . . . $2 each for those we buy.

JACKPOT

At the end of the year, we're going to review all the stuff we've bought, and the item we think was best of all is going to get an extra

$100.00

HE-SHE GAGS

This is really a soft detail. Three bucks for just kicking it back and forth between a Him and a Her. Duck soup! Three-dollar bills were sent to Barbara Fram, U. of Texas; Ira Gurney, New York Univ.; and Forest M. Cruse, U. of Texas, for these gags which limped in during the September contest:

* * *

She: When I get in a drug store, I feel like an anarchist.

He: Me too: *Down* with Pepsi.

* * *

She: When you go to a restaurant, why do you always flirt with the waitress?

He: I'm playing for big steaks.

* * *

She: So long . . . I'm going on a Pepsi party with my two beaux.

He: Beaux?

She: Elbows!

* * *

That's it . . . $3 each for any of these we print.

Daffy Definitions

We'll probably have to cut out this department soon. These things are beginning to sound logical to us. Until that day, however, any Daffy Definition we buy rates a fast buck. Like these:

Oboe—a cockney tramp.

Plenty—what Pepsi-Cola's your best buy by.

Barber shop—clip joint.

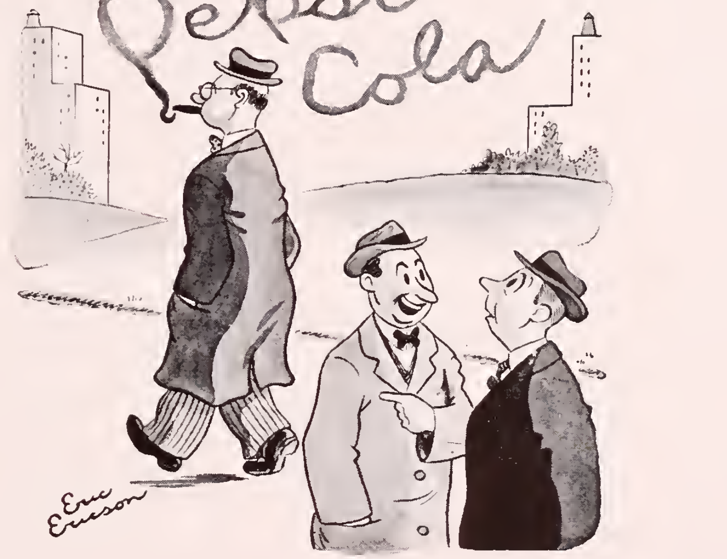
You—what Pepsi's the drink for.

Oyster—a fish that's built like a nut.

* * *

At $1 apiece for these, your conscience should keep you up nights. But that's what we pay for those we print.

GET FUNNY...WIN MONEY...WRITE A TITLE



" ———————————————————————— "

Here's a cartoon that needs something. Possibly adrenalin. Or maybe just a title. For cartoon captions we buy, we pay five bucks each. Or send us an original cartoon idea. $10 for just the idea . . . $15 if you draw it—if we buy it.

Easy Money for September cartoon captions went to Cadet R. J. Herte of the U. S. Military Academy, Laurence A. Ingwerson of Berkeley, Calif., and Tom Brody of Culver City, Calif.

HASH ON THE HOUSE

Here are a couple of miscellaneous gags we dredged up in the September contest. We couldn't classify 'em, but we thought they ought to be worth something. So we kicked in $2 each. Are we a soft touch!

Little Susie, at her first basketball game, overheard someone say that the home team was "red hot," so she immediately ran out on the floor with 5 bottles of Pepsi-Cola!

Sent in by Mrs. J. B. Kennedy, of Urbana, Ill.

Robert's uncle had just returned from Africa and paid a visit to the college lad. "Bob, my boy," said the uncle, "I've brought you a trinket." With that, he took out a Pepsi-Cola and handed it to his nephew. "But this is a bottle of Pepsi-Cola," exclaimed the boy. "Why, sure it is," said his uncle, "so . . . trinket!"

Sent in by Leonard Blostein, of Washington Square College, New York University.

"THERE'S ONE THING I CAN ALWAYS COUNT ON WITH CHESTERFIELDS ...THEY SATISFY"

Gary Cooper

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"UNCONQUERED"

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B BETTER TASTING
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MARCH 1948

CLEMSON, S.C.

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More people are smoking CAMELS than ever before!

I SMOKED MANY DIFFERENT BRANDS AND COMPARED—IT'S CAMELS WITH ME!
I'VE TRIED OTHER BRANDS—NOTHING SUITS MY 'T-ZONE' LIKE A CAMEL!
CAMELS ARE THE 'CHOICE OF EXPERIENCE' WITH ME!
CAMELS SUIT ME BETTER ALL WAYS. THEY TASTE SO GOOD—THEY SMOKE SO MILD AND COOL!

Jerry Ambler	Mrs. Dorothy Allan Newstead	Cecil Smith	Mary Reilly
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When 113,597 doctors from coast to coast were asked by three independent research organizations to name the cigarette they smoked, more doctors named Camel than any other brand!

The Agrarian

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VOLUME 7 THE CLEMSON AGRICULTURAL COLLEGE NUMBER 3

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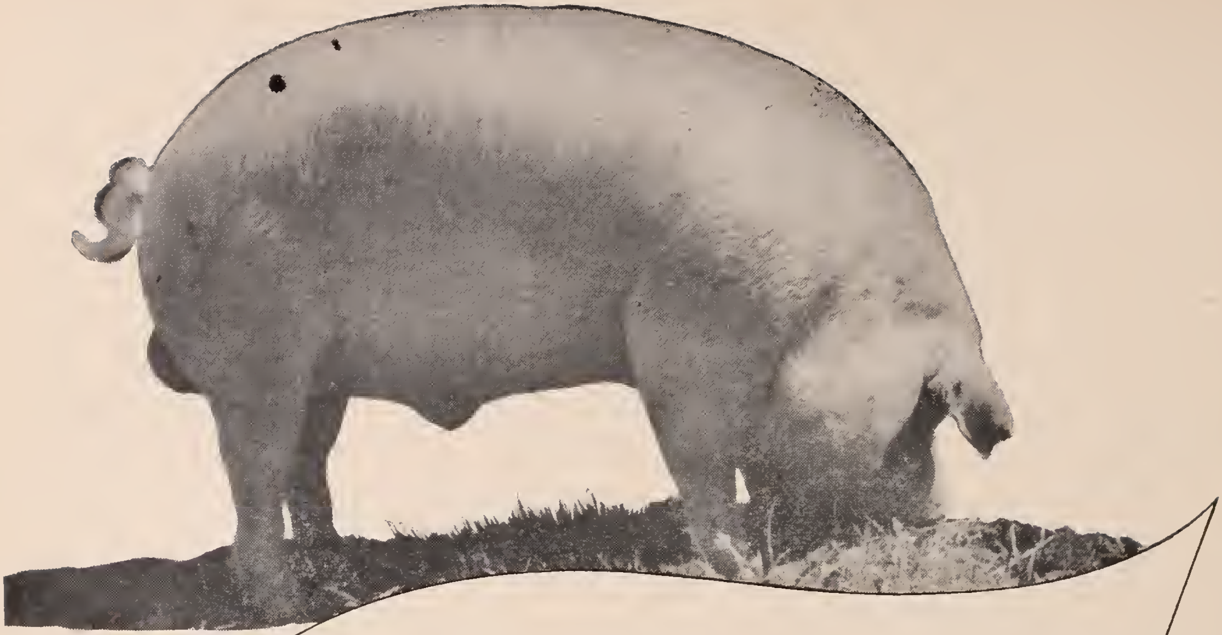
COVER — A pastoral country scene at the foot of the Blue Ridge Mountains in the northwest corner of the state. Photograph by J. Kenneth Eargle, South Carolina Agricultural Extension Photographer.

PICTURES on pages 11 and 19 through courtesy of South Carolina Agricultural Extension Service.



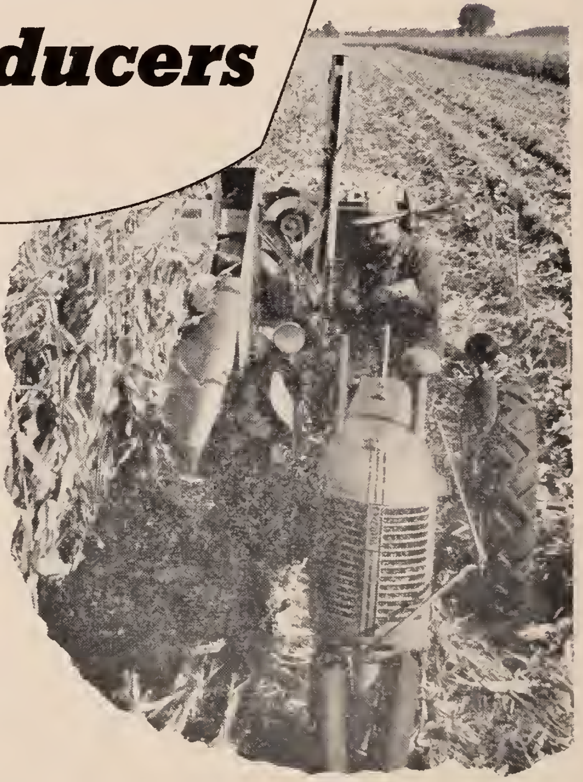
Set Your Sights on High Producers

● This is Prince Valiant, a mighty boar weighing 650 pounds when 16 months old. He sold for $500—not for his fine looks nor his load of loin and bacon, but for his promise as a sire. He has the build and the blood to boost pork production in countless litters of market hogs.

Fast growth by the pig yields higher production per hour of herd care. Fast work in the field is the way for a man to tend more acres, grow more corn, feed more swine, get a higher yield of pork per hour. That's what counts in farming today—*yield per man*.

Better sires and better seeds add to the yield per animal and per acre. Better machines add to the number of acres and animals per man. Case machines are built a bit better than might seem necessary. Hence they hold down the time and cost for upkeep. As you look ahead to your own farming business, look to Case for equipment that will give you extra years from your investment, extra rewards from your acres and your hours. J. I. Case Co., Racine, Wis.

CASE



Fast work in heavy crops of hybrid corn is the purpose for which Case pickers are built. The one-row size, as here, fits the power and speed of two-plow tractors, suits the conditions of medium to small fields. The two-row size, by applying the power of larger tractors, harvests about twice as many acres per hour. Both sizes unhitch quickly to free the tractor for other work. Both sizes have a powerful blast fan to blow out loose leaves, silks, smut, etc. Corn goes to the crib cleaner, cures quicker.

Vocational Opportunities in Agriculture

Extracts From A Talk Made by Mr. R. A. McGinty, Vice-Director South Carolina Experiment Station

As a background for what I will say about vocational opportunities in agriculture it is desirable that the importance of the agricultural industry be realized. All of us, I am sure, appreciate the fact that the providing of food and the materials for clothing and shelter for all people is a big job, but just how big is it? In the United States one-fifth of our population is engaged directly in agriculture and in the South twice as many, or two fifths. This does not include those involved in processing, and marketing agricultural commodities, nor those in professional work related to agriculture.

One hundred and fifty years ago Malthus, an English economist, expressed the belief tht eventually the population of the world would become so large, it would be difficult to produce sufficient food to feed all the people. However improvements in farm implements, the introduction of more productive varieties and the use of chemical fertilizers came along and Malthus' theory was more or less forgotten. Recently the great number of hungry people in the world has revived the idea that perhaps after all the time may come when there will not be enough food for everybody.

At present three-fourths of the world's population follow agricultural pursuits - yet a large proportion of this population exists, and did before the war, on a diet bordering on starvation. In a land of abundance like the United States it is hard to realize this. In Mexico, a country next door to us, authorities say that 50 percent of the people suffer from inadequate diets and in China and India starvation and malnutrition are notorious. In spite of all this the world's population continues to increase.

In order that agriculture may provide us with food and other essentials and that the engineering, chemical, textile, and other industries may furnish us with things we want and need, trained men—educated men—are necessary. It has been said that prisons and penitentiaries are full of educated men but I do not consider that an argument against attending college.

Someone has said that a college education seldom hurts a man if he is willing to learn a little something after he graduates. You are all going to be college-bred young men and I assume that all of you are reasonable serious minded about work here and the opportunities that lie before you; that you have a Christian outlook, are honest and would like to render service to your fellowman when you go out into the world to make a living; and that your dealings with others in the business or professional world will be straightforward and upright.

In deciding upon a vocation you may be determining whether you are going to be happy and successful or otherwise. I have always felt that it is important for one to get into some kind of work which he likes. Again I assume, that he will like work which is honorable and that will have no harmful influence upon his fellowman.

One thing to remember is that success is not attained by staying awake at night but by staying awake in the daytime. There are various standards by which success is measured. It is usually thought of in terms of material things, but one author, Edgar Guest, expressed the idea that "it's service that measures success".

Well, what about these vocational opportunities in agriculture? The word, agriculture, suggests farming which is an important vocation as I have already pointed out. Its attractiveness as a vocation is increasing with mechanization which greatly reduces the drudgery, and science which makes the final results more certain. If you like to live in the country, farming is one of the most satisfying of occupations. However a farmer needs to be smarter today than was once the case. As Philander Knox says—

> "A farmer has to know the way
> The markets go from day to day,
> And how to read a statesman's mind
> And speak his own in phrase refined;
> Each evening he must read anew
> Psychology and science too,
> And study maps of isotherms
> And the geneology of germs,
> Figure out the laws of chance
> And economics and finance.
> A farmer I should like to be,
> The blissful hope is not for me;
> It isn't that the road's so rough,
> I simply do not know enough."

Farming is only one of the many vocations open to those trained along agricultural lines. Other vocations include such lines as research, teaching, and extension as well as many opportunities for agricultural graduates in private businesses. Altogether there is a great variety of opportunities open to the man trained along agricultural lines. The demand for men is great at present and seems likely to continue for a considerable time to come. One thing I thoroughly believe is that there is always a demand for good men. Even in times of depression good men can get jobs although there may be no place for the mediocre.

What is the difference between a good man and a mediocre one? Part of it depends on native ability and other inherent qualities, but much depends upon things which any individual, whether above average in na-

(continued on page 22)

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SAFETY AT HOME AND ON THE FARM

Farming Is A Dangerous Occupation That Can Be Made Much Safer by Little More Thoughtfulness

CLYDE R. ALLEN
Agricultural Engineering 1949

Safety demands thinking before acting. Most accidents occur as a result of carelessness on the part of the individual. Now that the war is over we must turn our attention toward safety at home. It is sad indeed that each day so many of our farm people are destined to die or to be badly injured by acts of carelessness. With the increase in farm machinery and power tools there has come a definitely large increase in the number of farm accidents. The number of injuries inflicted due to careless handling of farm machinery has surpassed those attributed to farm animals. The greatest number of accidents on the farm occur as a result of falls. Some of the other causes in order of their percentages are: machinery, animals, and heat exhaustion. The best method of combatting these hazards is by education of the individuals involved.

Farming can be a dangerous occupation. Unless the proper precautions are taken at the time needed, a serious or even fatal accident may occur. Statistics show that one fourth of all the persons killed in occupational accidents are farmers. These records may be partially explained by the fact that tractors are more dangerous than automobiles, and farm machinery is more deadly than industrial machinery. With the increase in production of farm machinery we must enact more and better safety precautions in order to make life safer. The farmer is a "Jack-of-all trades", and therefore, his safety precautions should cover a wider range than those precautions of men in other professions.

The Bureau of Agricultural Economics of the United States Department of Agriculture made a survey of accidents on 15,000 farms in January of 1947. The accidents reported included all injuries to the persons living or working on farms covered in the survey. Medical expenses resulting from these accidents amounted to approximately $40 for each person injured. The average time lost by each person injured was about three weeks. The survey indicated that eight percent of all the injuries were in the northeastern states, ten percent in the western states, and thirty-eight percent in the southern states. From these figures we can readily see that the South has much room for improvement in the field of farm safety. The accident death rate per 100,000 population in the United States is almost double that of other countries and is exceeded by only one other country, Chile. According to a census taken by Mr. John D. Rush, Agricultural Economist, Department of Agriculture, Washington, D. C., an average of forty-five to fifty farm people are killed by farm accidents in the United States each day. An annual death toll of 17,000, and an annual injured list of 1,500,000 is reported. About one-third of the farm people killed in accidents are mortally injured while doing agricultural work, and most of these accidents come about as the result of carelessly handling farm machinery.

Careless handling of farm machinery causes many accidents each year.

"What goes up must come down." In the process of climbing on buildings or on ladders, the speed at which one returns to the ground is usually left up to the individual. Everyone should be especially careful when climbing. Falls injure more farm people than any other kind of accidents, and falls on stairs and steps or from vehicles are the most common. Most of the common falls result from carelessness.

Farm tractors are involved in about one-third of the accidents dealing with farm machinery. The farm tractor is a great asset to the farmer, and yet it is a very dangerous machine. Some of the safety rules which should be regarded while operating a tractor, as compiled in the Texaco Farm Manual, are as follows:

1. Be sure the gear shift lever is in neutral before cranking the engine.
2. Always engage the clutch gently, especially when going up hill or pulling out of a ditch.
3. When driving on highways, or to and from fields, be sure that both wheels are braked simultaneously when making an emergency stop.
4. Always ride on seat or stand on platform of tractor. Never ride on drawbar of tractor or drawn implement.
5. When going down steep hills or grades, always keep the tractor in gear.
6. Always drive tractor at speeds slow enough to insure safety, especially over rough ground or near ditches.
7. Reduce speed before making a turn or applying brakes. The hazard of overturning the tractor increases four times when the speed is doubled.
8. Always stop power take-off before dismounting from the tractor.
9. Never dismount from tractor when it is in motion.
10. Do not put on or remove belt from belt pulley while the pulley is in motion.

(continued on page 22)

Outstanding Ags of The Month

This month The AGRARIAN is proud to introduce you, the reader, to seven students from the School of Agriculture who have been chosen by their classmates in their various departmental clubs as having contributed much to the advancement of Clemson College.

J. Gilbert Hardee

J. Gilbert Hardee, Agricultural Economics senior of Loris, S. C., is one of the most outstanding students at Clemson.

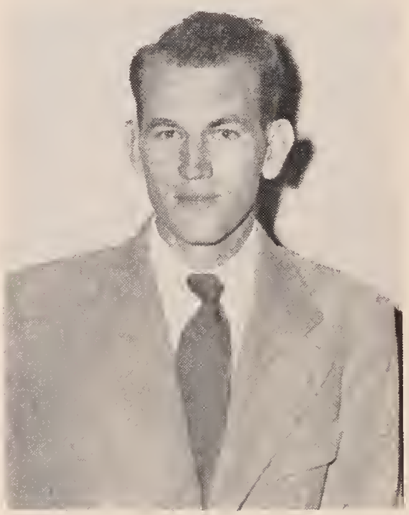
Gilbert entered Clemson in the fall of 1942. As a freshman he won the National Danforth Fellowship and was awarded a trip to the American Youth Foundation Camp near Shelby, Michigan. After completing his sophomore year he entered the Navy where he served for eighteen months. He returned to Clemson in September of 1946 and was elected president of the junior class. He has since received many honors and has proven himself a leader in the truest sense of the word. Besides serving as president of the junior class Gilbert is also president of the South Carolina and local Baptist Student Union, Scribe of Alpha Zeta, member of Block "C", Editor of the Blue Key Directory, member of the Senior Council, member of Blue Key and Tiger Brotherhood, Secretary of the Economics Club, member of the YMCA Cabinet, sings in the Glee Club, and is listed in "Who's Who Among Students in American Colleges and Universities".

Gilbert plans to do graduate work, perhaps at Clemson, after his graduation in June.

Among his outstanding attributes are his genuine sincerity and his high sense of values. He possesses qualities of leadership not often found in college students.

Lewis F. Cato

Lewis Cato entered Clemson as a freshman in September, 1946. He came to Clemson directly from Monetta High School. His college education was interrupted in his "rat" year when he was called to the service and joined the Army Air Force. After his training in the states, he was sent to Italy, where he made thirty missions as a navigator on a B-24 bomber.



Lewis is married to the former Miss Julia Antley of Orangeburg. They have a son that is two months old. He is majoring in Animal Husbandry and is President of the Animal Husbandry Club. He was recently initiated into Alpha Zeta.

His plans for the future are indefinite but as soon as facilities become available he hopes to enter the School of Veterinary Science at Auburn.

David C. Settle

David Settle, who is a senior majoring in Horticulture, hails from Inman, S. C., in the heart of the peach section of Spartanburg County. After serving with the Army in the Philipines, David returned to take up his work in Horticulture at Clemson and has distinguished himself in a number of ways.

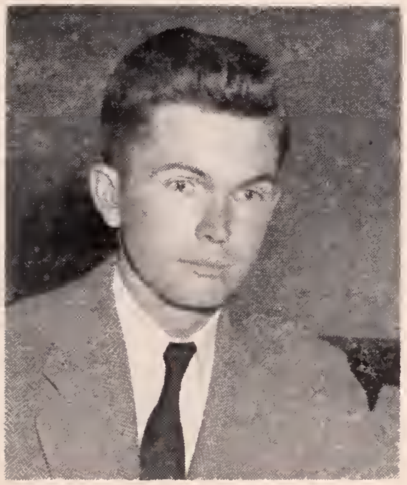
Since returning he has been living at the Horticulture Greenhouse where he works in his spare time. Through his work at the greenhouse he is gaining immense amounts of practical experience which will be invaluable to him in later years.

David is now president of the Horticulture Club and has made honors in his scholastic work for the last several semesters.

Upon completion of his work in June, Settle plans to return to Inman and go into the peach orchard business.

Ernest B. Rogers

Ernest Rogers came up from Sumter, S. C., to enroll at Clemson in 1941. After spending two years here he was called into service. He served in the Air Transport Command as radio operator for thirty months before receiving his discharge to return to Clemson, where he resumed his studies in the field of Agricultural Engineering.



Ernest is now president of the local branch of the American Society of Agricultural Engineers and is a former member of The AGRARIAN staff. He has also been a member of the Sumter County Club and YMCA Councils.

He will graduate in June and plans to go into the farm implement business near Sumter.

Richardson M. Hanckel

Richardson Hanckel entered Clemson as a lowly "rat" from Charleston in September, 1944. It wasn't long before his nickname of "Sonny" became universal all over the Clemson campus whenever and whereever he was spoken to. Although it is not known where this nickname originated it is assumed that he acquired it through his radiant and cheerful personality. "Sonny" is one person whom you can truthfully say always has a smile on his face.

Since coming to Clemson, "Sonny" has been very outstanding in various extra-curricula activities. He is now president of the Dairy Club and Beta Sigma Chi as well as being chairman of the School of Agriculture's exhibits in the coming "Clemson On Display". "Sonny" is also a member of the Canterbury Club and Alpha Phi Omega in addition to being past Feature Editor of The AGRARIAN.

He hopes to enter the University of Missouri for graduate work in dairy products upon graduation from Clemson in June. After spending a year there he is going into business with his father at Coburg's Dairy in Charleston.

Samuel O. Tomlinson

Samuel O. Tomlinson, Vocational Agricultural Education senior of Olanta, began his collegiate career at Clemson in September of 1938.

This outstanding senior completed two years at Clemson before accepting the position of Estimator of Materials for the United States Engineers with his office in New York City.

Sam entered the Air Corps in August of 1942 where he served with a radar outfit until he was discharged in November of 1945. Tomlinson re-entered Clemson in September of 1946 and is a candidate for graduation in June.

The Olanta senior has been active while at Clemson, participating in the activities of the Horticulture Club, Future Farmers of America, the Sophomore Y Council, and is now president of the Kappa Chapter of Alpha Tau Alpha.

Upon graduation this Vocational Agricultural Education graduation candidate will teach vocational agriculture in one of the high schools of the state.

He is now teaching veterans at Keowee in his spare time.

Ray C DuBose

Ray's sterling character and amiable personality has won him many friends while at Clemson.

Ray came to Clemson as a transfer student from Wake Forest to major in Agronomy. Between the change of schools he spent five years in the Army Air Corps where he served in the European Theater of Operations.

While at Clemson Ray has entered the "limelight" by having attained a high scholastic record and by having done outstanding work in extra curricula activities. As evidence of this, Ray served as vice-president of Kappa Alpha Sigma, vice-president of the Veterans Executive Committee, and censor of Alpha Zeta while at Clemson. Speaking strictly scholastically Ray is also a member of Phi Kappa Phi, national honorary scholastic fraternity; this membership is coveted by every member of the Clemson student body.

A native of Lamar, he plans to work in the fertilizer industry upon graduation.

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Research and Marketing Act

South Carolina Will Benefit from This Legislation Which Provides Funds for Research in Agriculture

JOHN F. ALEXANDER
Agricultural Economics 1949

Our people are indeed wise to have recognized anew the importance of agriculture to the success of our country. Through their elected representatives they have had enacted national legislation which provides additional funds for research into agricultural problems, particularly in the field of marketing. This act should do much to strengthen our agriculture and thereby the entire nation. The Research and Marketing Act (this is its official title) was approved August 14, 1946 as an amendment to the Bankhead-Jones Act. It is an act "to provide for further research into basic laws and privileges relating to agriculture and to improve and facilitate the marketing and distribution of agricultural products."

Because it is essential to our people to have a satisfactory and prosperous agriculture, and because Congress has made it possible for agriculture to have a place in research more comparable to that enjoyed by large scale industry, the Secretary of Agriculture has been authorized to conduct research into the following: the newest methods of production, marketing, distribution, processing, and utilization of plant and animal commodities from the producer to the consumer; human nutrition; present and new markets for products; new crops, plants, and animals; better use of our resources; the conservation and development of land, forest, and water resources for farm purposes; the design and development of more efficient farm buildings, machinery, and homes; diversification of farm enterprises; and any laws and principles that may contribute to make a more effective and permanent agriculture.

Under provisions of this Act the South Carolina Experiment Station received $66,628 for research for the fiscal year 1947-48. For July 1948-49 the hope is that this amount may be doubled.

To assist in the utilization of the funds under the Research and Marketing Act there is a "Committee of Nine" elected by the Experiment Station Directors and approved by the Secretary of Agriculture. Their duties are to examine and screen all projects suggested, and to select those which seem to be the most promising from the standpoint of improving the agriculture of an area or region. Mr. R. A. McGinty, Vice-Director of the South Carolina Experiment Station here at Clemson, is one of the two southern representatives of this nine man committee. The other seven representatives are from the north central, eastern, and western agricultural regions of the United States. Mr. McGinty has just recently been to Washington, D. C. to help determine the allocation of $1,240,000 for regional research projects. The southern states experiment stations can expect to receive about one-fourth of the amount assigned for the fiscal year 1948-49, Mr. McGinty says.

Among the projects undertaken at the Clemson Experiment Station through support of these new research funds may be mentioned one to study the costs and efficiency of marketing cotton. Twenty areas of South Carolina are being studied to determine the influence of free classing service on marketing practices, and the extent mill buyers are responding to the efforts of farmers to produce better milling cotton. Another project is one to study economic losses due to spoilage in marketing of early Irish potatoes. This project, like the cotton project, is on a regional basis, that is, several states are cooperating in it. The regional project has certain advantages. Among them is the fact that it makes possible observation of marketing practices in consumer areas as well as in production centers. The Irish potato project is set up to study spoilage in transit, the importance (if any) of washing and drying the potatoes; influence of field practices (such as leaving in the sun too long) upon losses; and which varieties stand up best and sell best in the northern markets.

Other Research and Marketing projects have to do with eggs, tomatoes, and watermelons. The study of egg market problems centers chiefly in the spring months when there is usually a surplus. Grading of eggs, storage during surplus season, processing—all these will be studied under this project. The egg and poultry problem will come to be more important as cotton gives way to other agricultural enterprises. Another project is one in which certain areas are selected and their capacity to produce and consume determined. At present there is a study of the Upper Piedmont to determine the amount of food and grain products produced and consumed. An effort is being made to determine savings, if any, which could be effected by storing during certain seasons so as to reduce cost of shipping out feed grains which later have to be shipped back into the county as mixed feeds. Altogether 18 new projects, attacking the same number of perplexing farm problems are in operation in South Carolina alone as a result of this new Research and Marketing Act. Each project studied and each problem that is encountered and corrected means a much better life for some farmer, and in turn for his fellow man. This Research and Marketing Act shows signs of the fundamentals of a good agricultural policy in striving to establish equality for agriculture.

Frozen Foods in South Carolina

Freezer-Locker Industry Expands in This State as Farmers Discover Easy Way to Save Farm Meats

By HARVEY Z. WOODFIN
Animal Husbandry 1948

The purpose of the cold storage locker is to freeze and store properly prepared meats, fruits, and vegetables for future consumption, preserving to the greatest possible extent the freshness of the product. The particular kind of service rendered by a locker plant is reported to have started on the Pacific Coast about 1903. The first one was for merchants only, but in 1908 the plant extended its services to farmers for the storage of meats in boxes. The number of freezer lockers has increased constantly from this early beginning. The July, 1945 estimate of locker plants operating in the United States was 6,464, representing 48 states. This represents an average annual increase of 410 percent from 1938 to 1944.

Preserving foods by freezing is increasing rapidly in South Carolina as more community frozen food locker plants are constructed and home freezers become available. There are fifty-five locker plants serving twenty-five thousand families. Many more are needed at the present time.

Meat and meat products now constitue a large part of the foods stored in frozen food lockers. The standard commercial locker contains about six cubic feet of space, and will accomodate between 250 and 300 pounds of carefully packaged and packed meat. The average family of five will consume about 700 pounds of meat during the year, which means that if the locker is to be used for poultry, fruit, and vegetables, as it should be, the handling of the products to be stored must be distributed through the year as much as possible. It is often advisable to rent additional space for a short period to take care of the fruits and vegetables because their harvest is seasonal.

Livestock is raised on nearly all farms, and where livestock is produced, at least part of the home meat supply should also be produced. Healthy, well-finished animals provide the best quality meat for storage. Only animals showing good quality and finish should be slaughtered for home use. Freezing food will not improve it, and food removed from the freezer is no better than that which went into it, therefore careful selection of products is very important.

Beef, pork, veal, fish and game can be frozen conveniently. Freeze selected cuts which are high in percentage of meat and tender in quality. Meat cuts high in bone content should be boned and ground in order to conserve locker space. Cured and smoked cuts are being frozen in some plants. Storage should follow "sharp freeze" temperatures, and the meat must be wrapped carefully and sealed in moisture proof wrapping to prevent the spread of the odor.

A clean job of slaughtering is very important. Bruised meat does not keep well and should be trimmed. Dirty meat should be cleaned before putting it in the locker. Open the body cavity or split the carcass, and, in hogs, pull out the leaf fat before chilling.

The freshly-slaughtered carcass should be chilled promptly to a temperature just above freezing. Failure to chill beef promptly may cause souring in the deep-seated hip joint of the round. Hams often sour if pork carcasses are not chilled promptly. Chilling temperatures usually recommended is 32° F. for 36 to 48 hours. This chilling is done before the meat is frozen.

Beef, lamb, and mutton will become more tender if they are aged in a chill room at 32° to 34 degree F. for a week or ten days after slaughter. Only animals or cuts with ample fat covering should be aged. Low-grade, lean carcasses permitted to hang at these temperatures will putrify rather than tenderize. Meats lacking in fat should be frozen immediately after chilling. It is not wise to age meat for unduly long periods because some tenderizing occurs during the period of frozen storage. When meat is aged too long, mold develops on the lean surfaces and produces undesirable odors and flavors.

The size of roasts, the thickness of steaks and chops, and the amount of ground meat should be adapted to size of the family or the amount that can be used at one time. In order to save space large bones should be cut out where possible. Good-quality steaks are cut an inch or an inch and one-half thick because thin steaks dry out too much if stored very long. Ground meat is not as well suited to prolonged freezer storage as is unground meat. Ground meat should not contain sodium chloride (salt), but all other seasoning may be added. Salt increases oxidation in ground meat and causes rancidity.

The quality of frozen meat depends greatly upon how it is wrapped and stored. After the meat is cut into individual pieces, it should be immediately wrapped in moisture-resistant paper. After the meat is packaged, it should be tied firmly or sealed with gummed tape. The name of the cut, the date, and the locker number should be stamped or written on each package. Good quality wrapping paper should be used as it is not expensive and will save meat loss.

After the meat has been carefully packaged, it should be placed immediately in the freezer. Spoilage of meat may be very rapid if it is allowed to warm up and sweat for a considerable time. The meat should be quickly frozen in a room with a

One of the many freezer-locker plants now in use all over South Carolina

temperature of —20° F. or possibly colder. This room is called the quick freezing room. Quickly frozen meat more nearly resembles fresh meat, after thawing than does the slowly frozen product. The locker room temperature should be kept at 0 degree F. and not allowed to vary more than a few degrees because if temperatures as high as 10 degrees to 15 degrees F. are used, the fats turn rancid and the product is often unsatisfactory. If the temperature cannot be held lower than 15 degrees F., pork should be used witin two months and beef, veal, and lamb be arranged so that the desired packages may be removed with a minimum of sorting and handling.

Meat begins to thaw as soon as it is removed from the freezer locker. This causes the meat to be very wet and offers a very good place for harmful bacteria to grow. This means that the meat should be cooked as soon as possible after it thaws out.

If the meat is properly cooked, the taste will not vary much regardless of how it is thawed—slowly, rapidly, or cooked without thawing. If meat is cooked without thawing, care must be taken to cook the meat thoroughly as the meat requires some time to thaw and then cook all the way to the center. Frozen meat requires from 22 1/2 hours per pound to thaw when it stands at room temperature. One practice to remember is not to remove the wrapwrapping until it is to be used.

Many home freezer units are now on the market. They can be used very efficiently along with the large locker plants. The home freezers are not large enough to freeze much meat at a time but will hold the meat after it is frozen.

Less labor is required in freezing meats than in curing or canning them. Experiments show that there is very little loss of nutrients in frozen meat. It is easy to see therefore why freezer lockers are being built all over the state at the present time and probably within a short time the freezer locker industry will become a major industry in South Carolina.

Lesson for after School

Standards for livestock are constantly improving. Breeders are developing better strains of meat animals – new feed and fodder crops are being discovered. These scientific advances are reflected in the prize animals shown at the yearly, great International Live Stock Exposition in Chicago, at similar large expositions in other sections of the United States, and at State and County Fairs throughout the country. Visit these shows frequently while you're still in school. It's part of your education. And keep up the habit after you have left school–for at these shows you will see the patterns for the animals you must raise to keep abreast of the market.

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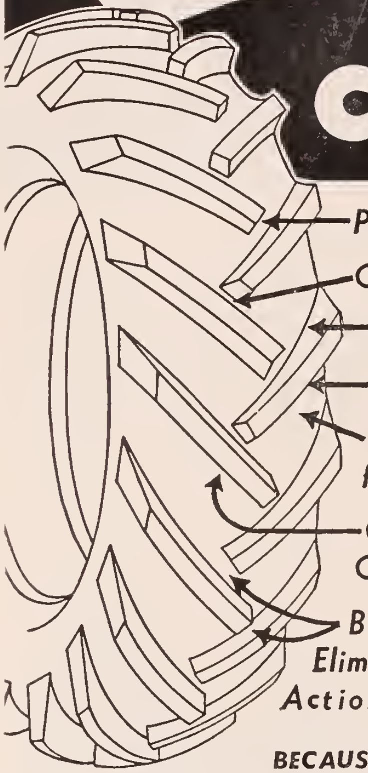
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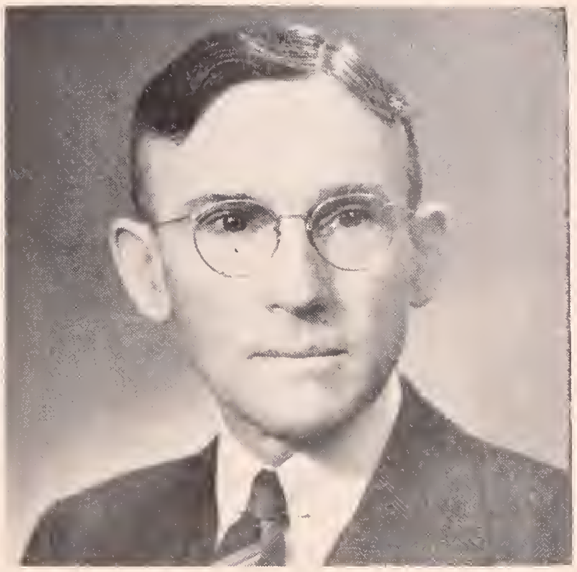

By FRED K. NORRIS
Agricultural Engineering 1949

George M. Armstrong, head of the Botany and Bacteriology Department was born at Appleton, S. C., in Allendale County. He was one in a family of seven children who received their schooling in a one room, one teacher school house. Perhaps it was this early association with the country and country life that caused Dr. Armstrong to become so intensely interested in plant studies.

Dr. Armstrong entered Clemson as a freshman in 1910 and decided to capitalize on his early experience so he chose as his major course, Agronomy. Dr. Armstrong states that his college years passed all too quickly and the summer of 1911 found him with a B.S. degree from Clemson. Upon graduation he continued his line of work and became a graduate assistant in Plant diseases in the Botany Department. His interest in Plant Pathology led him to accept this job at the salary of $40.00 per month.

Through his experiences at Clemson as an assistant in the Botany Department he got a fellowship to teach and work on his masters' degree at the University of Wisconsin. After receiving his degree he returned to Clemson and taught for one year before the war came along and interrupted his plans.

After this period of interruption he returned to Washington University at St. Louis, Mo. to get his Ph.D degree. He completed his work there in 1921 and liked it so well that he stayed on to teach for three years. The saying "once a South Carolinian always a South Carolinian" held true in his case and in 1924 Dr. Armstrong came back to South Carolina, this time working with the Experiment Station at Florence where he was head of the Boll Weevil Control Division which was a new department then, since the boll weevil menace had just begun. His work along this line lasted over a period of five growing seasons.

In September of 1928 Dr. Armstrong was reassigned; this time as head of the Botany and Bacteriology Department.

Dr. Armstrong's intent interest in research has led him to write numerous bulletins and books on subjects ranging from Plant Physiology and Pathology to Agronomy and studies of Cotton Fibers. He states that he likes to teach too, but nothing beats "piddling in the lab".

Not only has Dr. Armstrong excelled in the research field but also has excelled in his professional field. He is a member of the American Association for the Advancement of Science, The American Phytopathological Society, The American Society of Plant Physiology, the Botanical Society of America and a member of the South Carolina Academy of Science.

Speaking of honor fraternities, Dr. Armstrong has also done himself proud in this respect. He is a member of Phi Kappa Phi (National) Honor Fraternity and Sigma Xi (Honor Science Fraternity for graduate students). He is also a member of Phi Sigma (Honorary Biological Fraternity) and is one of the most faithful faculty members of Alpha Zeta (the National Honorary Agricultural Fraternity) that there is at Clemson. Nearly every meeting finds Dr. Armstrong there as a visiting faculty member to advise the boys whenever he can. He has also been faculty adviser for Alpha Zeta at one time or another for at least six years.

His interest in community work has led him to take an active part in Boy Scout work. In addition he is a member of the Fellowship and Rotary Clubs.

Dr. Armstrong is another Clemson man who has done much for Clemson through his years of service as teacher, adviser, and community citizen.

Among Our Alumni

1942

J. C. Holliday is now in graduate school at V. P. I. and is going to Washington State College next year to work towards his Ph. D.

1943

St. Clair A. Knight is agricultural engineer with Duke Power Co. in Spartanburg, S. C.

1945

A. H. Maybin is teaching in the State Institute of Agriculture at Farmingdale, N. Y.

BETWEEN THE

KRESS FUND SPEAKER

Dr. Charles A. Shull, nationally known plant physiologist who was formerly at the University of Chicago, will be at Clemson on April 19, 20, and 21 to present a series of lectures under the auspices of the Kress Fund Committee.

In addition to a general lecture to which the public is invited titled "Problems in Human Nutrition", Dr. Shull will also present a series of lectures to groups of students and faculty from the School of Agriculture. The lecture before the general public will be sponsored jointly by the Kress Fund Committee and the Fellowship Club. The student lectures will be sponsored jointly with the local chapter of Alpha Zeta.

The first topic to be delivered before a joint student-faculty group will be "Modern Trends in Plant Physiological Research". The other lectures are to be given before joint meetings of the agriculture departmental clubs and are entitled "Modern Trends in Plant Physiological Research", "Organic Gardening", and "Water Dynamics of the Soil-Plant-Atmosphere System."

Dr. Shull will come to Clemson from Asheville, North Carolina, where he has been living since his retirement from the faculty of the University of Chicago.

DR. W. R. PADEN NAMED TO HIGH POST

Dr. W. R. Paden, agronomist with the South Carolina Experiment Station at Clemson, was recently named to the National Soil and Fertilizer Research Committee. This is a committee composed of six representatives from state experiment stations and four members of the United States Department af Agriculture. Dr. Paden will assist in making recommendations to the state experiment stations on soil and fertilizer research problems. He is one of two men from the South who were selected for the appointment.

McGINTY RETURNS FROM WASHINGTON

Mr. R. A. McGinty, vice-director of the South Carolina Experiment Station at Clemson, returned recently from a trip to Washington where he attended a meeting of the Committee of Nine, a national group which allocates funds for regional research projects under the Research and Marketing Act. In this meeting the committee had as its duty the allocation to state experiment stations of the United States, $1,240,000 for research projects in 1948-49. It is not known at this time exactly how much Clemson and South Carolina will get of this fund but it is assured by high officials that Clemson will get its share.

Mr. McGinty was one of two representatives from the South who attended this meeting, the other seven committee members being from Eastern, North Central and Western agricultural regions of the United States.

NEW GREENHOUSES

Modern new greenhouses will soon greet floriculture students at Clemson. The Horticulture Department is constructing two new greenhouses, 100 feet by 32 feet, to be used primarily by students in floriculture lab work. The buildings will be completed and put into use this summer.

Also included in the buildings is a new greenhouse for use by the Botany and Bacteriology Department in Plant Physiology and Plant Pathology work.

ALPHA TAU ALPHA OFFICERS

S. A. Tomlinson was moved up to president in a recent election held by the Kappa chapter of Alpha Tau Alpha. Tomlinson was formerly first vice-president and this move was effected by the graduation of C. S. Beam, former president. J. T. Black was moved up from second vice-president to the position of first vice-president and D. K. Stokes was elected to fill this position.

FURROWS

A.S.A.E. ENTERTAINS GEORGIA

The South Carolina student branch of the American Society of Agricultural Engineers was host to the Agricultural Engineering students and faculty of the University of Georgia at a banquet held in the Clemson College dining hall recently. A tour of the campus was held in the afternoon after which a turkey dinner was enjoyed. This meeting was the first of its kind ever held at Clemson.

E. B. Rogers, president of the local branch of ASAE, acted as master of ceremonies at the banquet. Among the distinguished guests introduced from Clemson were Dr. R. F. Poole, president of Clemson College, and Mr. J. M. Eleazer, Information Specialist for the South Carolina Extension Service, who is well known all over the South for his interesting column.

Mr. James F. Forehand, president of the Georgia branch of ASAE, introduced the faculty members and distinguished guests from the University of Georgia. Included among these were Mr. U. H. Davenport, professor for the past fifty years at the University of Georgia, and Clemson graduates L. O. Drew and D. T. Kinard.

Also present was Mr. W. E. Hudson, associate professor of Agricultural Engineering at the University of Georgia, who made a short address. The program also included a musical act by Bobby Mace and Fred Norris and a comedy act by Frank Lucius after which the meeting was adjourned.

JUDY HEADS ECONOMICS SOCIETY

Lamar T. Judy, agricultural economics junior from Orangeburg was elected president of the Clemson Economics Society at a recent meeting held at Dr. Ferrier's home. Other officers of the club elected at this time were J. O. Gerald, agricultural economics senior of Loris, vice-president; and J. D. Duncan, agricultural economics junior of Loris, secretary.

CLEMSON ON DISPLAY

This year as twice before in its history Clemson is to put its best foot forward and dress up in preparation for the two days in which time the various schools will present demonstrations and exhibits showing to the public exactly what is being done in that department at the present time. The dates for this "revelation to the public" have been set for May 8 and 9 and is to be called "Clemson On Display for Mother's Day". The majority of the various schools at Clemson will be participating but as in years past the School of Agriculture will take the major part because of the fact that it is better equipped to put on such a project.

The program to be presented by the School of Agriculture promises to be a most interesting and enjoyable one. Each of the departments has already started work on its projects as follows:

Agricultural Engineering: A display of the most modern and up-to-date farm machinery available today.

Agricultural Economics: Exhibits and charts depicting the status of the farmer in the world today.

Agronomy: Seed and soil exhibits as well as possibly some fertilizer demonstrations

Animal Husbandry: Will show some of its beef cattle herd in a show as well as a meats display in the lab.

Dairy: A dairy cattle show with emphasis on some of the finest bulls in the state which are being used in artificial insemination work. Demonstrations will also be going on in the creamery on ice cream and butter manufacturing.

Entomology: Insect pests of South Carolina and also a beekeeping display.

Horticulture: Demonstrations on canning and exhibits at the greenhouse.

Pre-Forestry: Grafts on skin analysis.

Poultry: Methods of incubation as well as other exhibits not announced.

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Columbia, South Carolina

Agrarian Philosophy

By

The Editor

MAKE IT YOUR PUBLICATION

Last spring a group of students working thru various faculty members met and began the reorganization of The AGRARIAN, which had been dormant since prewar days. After much hard work and struggling through various discouragements which accompany the reorganization of any project, the first issue was published.

Because the majority of that staff was graduating, a new staff was appointed to take over in the fall. When September rolled around the new staff assembled and started work on the next issue. In these two issues that were published during the first semester, most of the technical kinks were ironed out and we were ready to settle down to a smooth running organization when what should happen but our editor who was under the accelerated wartime program graduated in February. For the third time in as many semesters a new editor was chosen and work was again begun.

Up until this issue The AGRARIAN has made great steps forward and gives promise of even greater success. First, however we must have cooperation in the form of more staff workers. Our staff as it now stands has been able to publish several issues but in June most of them will have graduated. This means that we must have a larger junior staff to fill their shoes.

In addition to editorial staff men, we also need advertising staff men, and also workers on the business and circulations staffs. We can easily have the best publication on the campus if more students will try out for the staff.

At the next meeting let's see a lot of you freshmen and sophomores as well as some more juniors and seniors so that The AGRARIAN will be a magazine of which we shall all have a part in publishing.

THE NEW LOOK

Spring is here, the flowers are blooming, the birds are singing, and the grass is beginning to sprout around Long Hall. At last the Ag campus is beginning to take on the new look. Shrubbery has been planted on the terraces around the west door and protecting fences have also been erected. The administration has done its part toward making the campus beautiful, so what are we the students going to do toward keeping it beautiful?

There are several ways that we can help. Remember that Mother's Day is just a few weeks away and of course Clemson is going to be its prettiest for that occasion. But in order for this to be possible there are certain things that the students must do. The little things from day to day are the ones that count such as not dropping paper on the ground, and remembering to take the long way around the new grass. These together with other little reminders to those who forget will certainly improve the looks of the Clemson campus.

ORCHIDS TO THE NEW "WORMS"

Congratulations to the sixteen new student members of Alpha Zeta and the two new faculty associate members. The student members are P. L. Benfield, York; L. F. Cato, Monetta; Ernest L. Corley, Saluda; Earl Chamness, Bennettsville; W. W. Gaston, Richburg; P. E. Gervais, Johns Island; F. L. Fitzsimmons, Hendersonville, N. C.; J. F. Hicks, York; W. H. Kennick, Chester; H. P. Lynn, Clemson; D. P. Rochester, Salem; S. T. Russell, Jamestown; J. S. Rodgers, Charleston; W. R. Traylor, Ridgeway; H. Z. Woodfin, Inman; and S. P. Young, Dalzell.

Also initiated were two faculty associate members—Dr. G. H. Collings, Professor of Agronomy; and Mr. D. W. Watkins, Director of the South Carolina Experiment Station.

Honey Crop Investigations

Show That State Produces Variety of Flavors

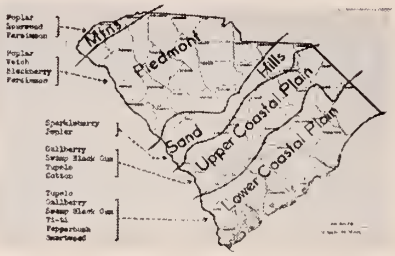
DAVID DUNAVAN
Associate Professor of Entomology

Beekeeping with its attending production of honey, one of the finest foods enjoyed by man, ranks among the oldest types of food production in South Carolina. Despite this fact, until very recent years no official investigations of the possibilities of beekeeping in the state had been made. However, about 1943 the increasing importance of beekeeping and of bees in the agricultural economy of the state was brought to the proper authorities and since that date several lines of investigations have been almost constantly in progress under sponsorship of the South Carolina Experiment Station.

One of the most fruitful lines of research has been that of the measurement of the honey crops in several areas of the state. The topography of the state is so varied and the range of climatic conditions so wide that a great variety of native nectar producing plants occurs within the confines of the states. It would be difficult to find another comparable area anywhere in the United States where a wider range of native plants of value to beekeeping exists. The accompanying map, Figure 1, will give some idea of the distribution of the more important nectar producing plants.

On the map are named only the plants which are classed as major honey plants; that is, plants from which appreciable amounts of surplus honey can be expected. Observations of the nectar-gathering activities of honeybees indicate that there are perhaps a hundred other species of plants in the state from which varying amounts of nectar are gathered. Some of these plants are , however, of great value to honeybees in enabling them to build their colony populations up to full strength in early spring or for merely furnishing enough honey for them to subsist through periods of dearth between major honey flows from more important honey plants.

A glance at the map will verify one of the most interesting aspects of beekeeping in South Carolina. This is the great variety of plants of value to beekeeping. Few of these are statewide in distribution and most of them are definitely limited to certain areas. Since the flavors, colors and other qualities of the honey from each of these plant sources are usually very distinctive and peculiar to each particular species of plant it will be realized that South Carolina literally has a honey to suit every palate. Thus, Sourwood honey from the mountains, with its delicious mild flavor has its following among those who appreciate really good things to eat and is so sought after that this honey seldom reaches markets far from the mountains where it is produced. Sparkleberry honey of the Sand Hill area has a flavor which consumers outside of this area sometimes have to acquire a liking for but which is considered very desirable in the area where it is produced. Pepperbush honey of the Lower Coastal Plain is a taste treat which probably deserves wider recognition. Tupelo, Gallberry, and the others also have their own flavors and other distinctive qualities.



Map showing the principle honey producing sections of South Carolina.

Another glance at the map, this time at the names of the plants, will emphasize one of the unique characteristics of South Carolina honey in general. This is the fact that most of the important honey plants are native plants of the wilds rather than cultivated plants. Changes in cropping systems, crop rotations or other vagaries peculiar to agricultural areas have very little effect on the amount or quality of South Carolina honey. Of the major plants listed, only Vetch and Cotton are cultivated plants.

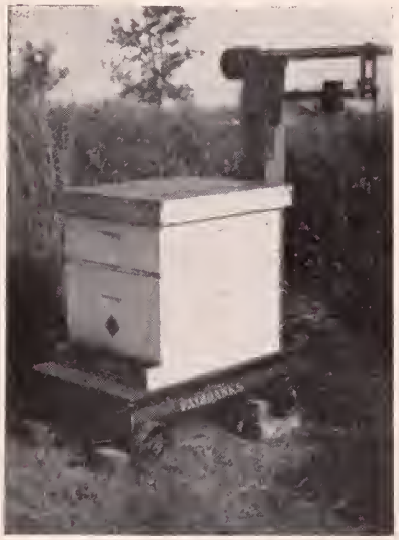
A question often asked by people unfamiliar with bees and beekeeping is, "How can a beekeeper be sure his honey is not a mixture from several species of plants"? In some cases this is difficult and when several species of plants are in bloom at the same time bees often gather nectar from some or all species. However, differences in blossoming dates usually make it a simple matter for beekeepers to separate one type of honey from another. For example, in the Coastal Plain, Tupelo trees are usually through blossoming in early spring by the time Gallberry bushes begin. While the two mentioned above are spring sources of honey, Pepperbush plants of the same area begin to bloom in late summer. Likewise in the Mountain area Sourwood opens its blossoms in late June when very few other plants are in bloom. More complete data on the seasonal distribution of honey flows in the several areas of the state can be found in the 59th Annual Report of the South Carolina Experiment Station published in September 1947.

Now a brief description of the methods used in securing information regarding honey production in the state will be in order. Reference has already been made to the fact that some species of plants are important sources of honey while others are of lesser importance. The causes of such differences are in most cases unknown. However, from the standpoint of beekeeping and honey production it is very important to know the following facts regarding the honey plants of a given area: (1) What plants are important honey sources, and (2) what season of the year these plants yield honey.

To secure such information as this, scale hives (see Figure 2) have been operated in several areas of the state for the past two seasons. As will be seen in the illustration, a scale hive is merely a hive of bees placed on an ordinary warehouse scale so that periodic gains or losses in weight can be ascertained. Local beekeepers and others have rendered valuable assistance in recording daily gains in weight of these scale hives during honey flows.

Records of these scale hives have shown daily gains of three pounds per day on many occasions. For two consecutive days in early April 1945 a scale hive in Barnwell County showed a gain of six pounds per day. On April 4, 1945 a scale hive in Horry County made a gain of fourteen pounds, the largest gain of any day for the season. On other occasions scale hives, because of inclement weather or other less obvious causes, have failed to make any appreciable gains during a period when bees should normally produce a good crop of honey. To date, the greatest total crop of honey recorded on a scale hive in the state was a little over three hundred pounds produced in the Lower Coastal Plain in 1946. This consisted of the combined flows from Tupelo, Gallberry and Pepperbush and likely included also lesser amounts from other minor plant species. Some realization of what a pound of honey means in terms of bee energy may give us some appreciation of the industry and accomplishments of these small food producers. Of course, a pound of honey represents the combined labors of thousands of bees in the hive. However, if we reduce our thinking to one bee proportions we get a more realistic picture of what a pound of honey means in bee activity. Consider the fact that a bee evidently has to visit over a hundred blossoms in order to get one load of nectar and that this load is scarcely a good sized drop. Further, this nectar is largely water which has to be evaporated as the nectar becomes honey. This one bee, in order to make the pound of finished honey single-handed, would have to work all day long 365 days per year for eight years and in so doing she would have to fly a distance equal to more than two complete round-the-world flights at the equator.[*] That is a pound of honey!

Careful observations in the field must be made during periods when scale hives are showing gains to determine what species of plants the bees are gathering nectar from. Weather conditions and other factors cause variations in the amount of nectar secretion by the various species of plants from year to year so that as yet no reliable means of predicting the size of honey crop in any area has been possible. The present investigations will probably have to be continued for several years in order to give a true picture of the honey producing possibilities of the various areas of the state.



Ordinary hive placed on a pair of warehouse scales to show periodic gains and losses.

---

[*] Authority for such figures as these is Dr. O. W. Park of Iowa State College, one of the foremost investigators of bee behavior.

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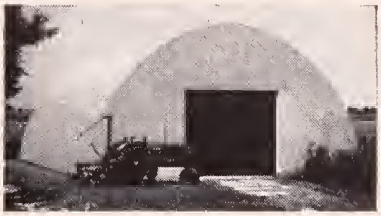

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Sesame Opens New Horizons to Farmers

State Farmers Will Have a Successful Cash Crop When Current Research at Clemson is Completed

LEE DeYOUNG,
Horticulture 1949

Maybe you scoff at the magic phrases of the ancients in the Arabians Nights, but J. A. Martin, Assistant Horticulturist at Clemson, has been hard at work for over 4 years attempting to change the legendary "Open Sesame" of Ali Babi and the cave of the 40 thieves to a more practical twentieth-century "Shut-Sesame."

Sesame, or "Benne" as it is more commonly called, is an annual herb which has been used in India and China as a food and oilseed plant since 450 B. C.

Although Benne is high in valuable oil content, its current production in this country is limited by uneven ripening and seed shattering characteristics which necessitate hand harvesting. If new determinate growth or non-shattering varieties can be developed which are suited to mechanical harvesting, Benne may well become an important cash and feed crop in the South. Mr. Martin has been breeding and experimenting with Sesame since 1943 in an effort to "Shut Sesame", bring about even ripening, formulate better cultural practices, and develop other desired characteristics such as high yields and high oil content.

Benne is no stranger to many South Carolina farmers, having been planted by them for many years along field margins and in the skips as a bird feed. Growing erect and to a height of 2 to 5 feet, it begins flowering when 2 or 3 months old and produces numerous oblong seed capsules along the stalk. These 2, 4 or 8-valve capsules contain 80 to 84 seeds arranged in 4 rows which yield 35 percent to 56 percent of an edible oil.

Working with approximately 300 varieties selected from many foreign countries, Mr. Martin has obtained many encouraging results in breeding Benne varieties which will be adaptable to commercial production in this country. Yield tests, row spacing tests and harvesting studies have been conducted as well as experiments toward developing non-shattering types which ripen evenly. During the 1947 growing season yield tests were conducted at Clemson, Blackville, Florence and Charleston. These tests showed that Benne is well adapted to South Carolina climates and soils, thrives prolifically, and produces large yields of the desired high oil content seed. Cultivation requirements are the same as those for cotton, therefore South Carolina farmers should experience no difficulty in growing Benne successfully. The experiments also showed that some varieties of the hardy herb possess disease and insect resistance and are adapted to a wide range of soil types.

Benne is not a newly discovered crop however. People have been cultivating Benne for thousands of years—the Egyptians in the Nile valley were using Benne for food and to prepare cosmetics when Pharoah's daughter found Moses in the rushes. Since then, Benne has been a friend of man the world over and has been used for many practical purposes. The people of South America use Benne in a refreshing drink called "Horchata", in Asia it is used in perfumes and as an illuminant. Benne seed are used in the decoration of bread and cookies, while the oil, usually pale yellow when refined, is used in cooking and salad oils and as a component in the manufacture of soaps, shortenings and some forms of margarine. It has also been discovered that penicillin may be taken orally if it is enclosed in the oil. The Benne plant itself is noted as an ornamental plant in gardens and the

Continued on page 22

One of the typical varieties of sesame being grown at Clemson.

Farm-Eating Soil Erosion Can Be Tamed

Soil erosion mutilated 500,000 acres of farm land last year! Even fields it failed to chew into gullies and ditches were often bled of their fertility. Unless it is curbed, this soil-hungry monster will cripple American farm production by gobbling more and more of our precious topsoil.

Fortunately, there are ways to control this spoiler of the land. Better crop rotations, contour farming, strip-cropping, and many other soil-saving practices have been developed by our agricultural experts. John Deere and other farm implement manufacturers are producing the machines that make the application of these new methods both practical and profitable.

It will take a lot of telling, explaining, and demonstrating, however, to acquaint farmers with the full possibilities of these soil-saving methods. That's why you can serve your neighbors and help to make your own future more secure by adding soil conservation to your stock in trade, and joining forces with the soil erosion tamers in your community.

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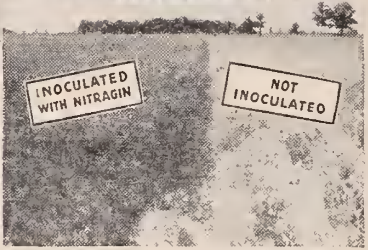

Note contrast above. Results like these are common in plot-testing of NITRAGIN inoculation. Higher protein content . . . improved soil fertility and other values of inoculated legumes do not show in these photographs.

Mixing NITRAGIN with legume seed is as easy as stirring up a batch of feed. Just moisten inoculant . . . spread over seed and stir. The NITRAGIN bacteria cling to the seeds . . . ready to work for you as soon as seed is planted.

● NITRAGIN inoculation, the first commercially produced legume bacteria, was registered in 1898. Millions of bushels of alfalfa, soybeans, clovers and other legume seed are inoculated with NITRAGIN every year. There is good reason for this. Farmers know that inoculation increases yields and improves the quality of their legumes. They know that NITRAGIN'S bacteria strains have been continually improved by laboratory and field-testing. Legumes grown for hay and seed show healthier growth . . . have added resistance to drought and winterkill when inoculated with NITRAGIN. Leading seedsmen everywhere sell NITRAGIN . . . the inoculant in the yellow can. Be sure to get it in the correct culture for the legumes you grow.

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VOCATIONAL OPPORTUNITIES

(continued from page 3)

tive ability can do. A salesman for a large company said the difference between average people and top people as he had observed it could be summed up in the three words "and then some". The top people did what was expected of them **and then some.** They were thoughtful, considerate, and kind, **and then some.** They met their obligations squarely **and then some.** It can also be said that the fellow who is fired with enthusiasm for his work is never fired by his boss.

SAFETY AT HOME AND ON FARM

(continued from page 5)

11. Never refuel tractor while engine is running or extremely hot.
12. When tractor is attached to a power implement, be sure that all power-line shielding is in place.

Animals are next in line in taking their toll of farm lives. Farm animals must be understood, respected, and handled with care. Animals on the farm can be man's friends and helpers, his producers and providers, but when irritated or frightened they can be very destructive.

Farm accidents have become so common that their damage is being overlooked by the average farmer of today. The accidents are of two different natures, avoidable and unavoidable. It is the avoidable accidents that we should be more interested in. We must devote more of our time to precautionary measures, and to the instruction of farm labor on safety rules to be enacted on the farm.

SESAME OPENS NEW HORIZONS

(continued from page 20)

leaves have medicinal value when soaked in cold water.

However, it is the oil from Benne seed, which compares favorably with cottonseed oil, that is coming in for the most attention and is constantly being put to more new uses. The use of this oil in candies, ice cream, confectionaries and as a cooking oil has created a demand far above present production in this country. Cottonseed and peanut oil mills can extract the oil, and at least one South Carolina mill has already stated it could handle tons of the seed.

The waste which remains after the oil has been extracted can be pressed into cakes and used as stock feed. It has high nutritional value and contains about 45 percent protein, 95 percent of which is digestible. It has been found especially nutritious for cows, hogs and chickens. This cake is also valuable as fertilizer and contains large quantities of plant nutrients.

Benne may seem an insignificant little fellow to South Carolina farmers now, but if Mr. Martin can teach him to keep his mouth shut until the modern combine jolts him, he's likely to take on the significance of a gold strike to a forty-niner.

ROLLED HAY.... *The Bale of the Future*

A weather-resistant *rolled* bale with leaves locked inside! That is rolled hay . . . a bale that for the first time sheds rain like a thatched roof. Once your hay is in the rolled bale, you breathe easy. It's safe from sudden showers. The bale unrolls in a wide, soft, leafy mat, appetizing to livestock; can also be fed whole in the feedrack without waste.

The rolled bale represents a turning-point in haymaking for every family farm. Now you can package your *own* hay—with a home-owned one-man field baler, priced to fit the individual farm.

If hay could be trademarked, Allis-Chalmers would proudly place its name on the *Rolled* Bale.

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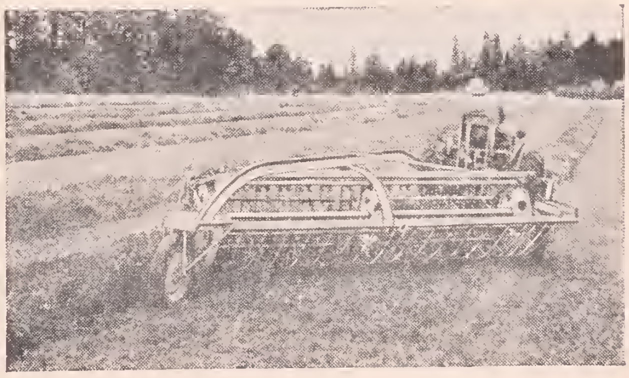
The Roto-Baler packages hay more compactly . . . in sturdy rolled bales that will not buckle . . . bales that store in less space and are convenient to handle and feed. Thousands of farmers from coast to coast are already making hay this better way . . . and like it.



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In Smith-Hughes Act and Spread Over Nation

By R. V. BOGGS
Vocational Ag. Education 1949

The cause for the development of the movement for a vocational training system may be said to have been the decay of apprenticeship; the disappearance of industries from the home and their transfer to the factory where the youth is never admitted and is therefore unable to learn its processes; the unpracticality of the public schools system which in the grades has been supplying the bare fundamentals and in the high schools a cultural education, thus really not preparing the boy or girl to earn a living; and the effect of the untrained and inefficient man upon economic and social problems. Without question much of our poverty is due to unpreparedness for some kind of a job on the part of a large number of young men and women. They have not been made producers. They have learned no skills and therefore do not fit in anywhere.

Objections To The Proposed Plan

There were objections to the movement for the establishment of public vocational training schools, and these came from two main sources. It was on the part of some educators that a public system of vocational training would direct many boys and girls into the trades and industries who would in the absence of such a system continue their study in the field of liberal education. The plan, it argued, would actually deprive many boys and girls of a liberal education, and the institutions of higher learning would suffer because of a decreased proportion of the boys and girls in the public schools seeking entrance to colleges and universities.

At this time the fact that 89 percent of the boys and girls in the public schools do not go to higher schools and that 90 percent of those that finish high school do not seek admission to the university was overlooked. Therefore, it would seem that a public system of vocational training made available to all those who wanted it would in fact encourage and greatly stimulate higher education.

Another objection to the Smith-Hughes Act or to a national system of vocational training has also been made on the ground of giving the Federal Government too much control over education. It was pointed out that if this should come about the people could at any time exercise their sovereign rights and reduce the degree of supervision. Naturally when the Federal Government gives the states funds it must at least have some supervision over how it is to be spent.

The method of financing, that of making a grant by the Federal Government and requiring the state to match it, is also objected to by some for the reason that it might hamper the educational development of the state.

Recent Developments of the Movements

In 1878 the National Grange adopted a resolution demanding the teaching of agriculture in the elementary schools. Rapid progress was made after 1906. A number of societies promoting industrial education sprang up. Massachusetts appointed a commission on Industrial Education. The National Society for the promotion of Industrial Education was especially active in promoting the establishment of a public system of vocational training.

The development in Congress was gradual. The subject of Vocational Education more or less seriously engaged the attention of our Federal lawmakers for almost a decade before the enactment of the Smith-Hughes law.

Mention should be made of the Davis Bill, which was followed by the Davis-Dolliver Bill. Credit must be given to these men for bringing the question to the attention of Congresmen and for making the passing of the law possible. In 1912 Senator Page of Vermont, to whom accrued the benefits of the previous bills, introduced a bill to provide the necessary funds and organizations of a vocational training system. By the terms of this bill it was proposed that the United States co-operate with the states in encouraging instruction in agriculture, the trades and industries, and home economics in secondary schools; in maintaining instructions in these vocational subjects in state normal schools; in maintaining extension department in State Colleges of Agriculture and the mechanic arts; and to appropriate money and to regulate its expenditure. It will be noted that this bill included in the plan to establish vocational training, a system of extension service. The extension feature, subjected of course to considerable revision was taken up by Congress in the Smith-Lever Bill and enacted into law in 1914, with the part that relates to vocational training in agriculture, home economics, and the trades and industries, was embodied in a revised form in another bill known as the Smith-Hughes Bill, which was passed by Congress in 1917.

The Smith-Hughes Bill was passed February 23, 1917. It's objects:

"An act to provide for the promotion of vocational education; to provide for cooperation with the states in the promotion of such education in agriculture and trades and industries; to provide for cooperation with the states in the preparation of teachers of vocational subjects; and

(continued on page 26)

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From mule-drawn wagons to fuel-powered tractors... these next few months will see farm equipment working long, hard hours... plowing, planting and protecting the bumper crops that America has promised to produce for herself and for the world.

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SNOOPIN' AMONG THE AGGIES

The brief incidents that make life cheerful are often overlooked by unconcerned parties. Lately, we have become quite concerned with the delightful escapades of the boys that hail from the farmlands of South Carolina. We think that Clemson's true Country Gentlemen, the elite farm group, have been overlooked by many a social register. Note: This column is by no means a social register, as you will discover, but a few selected words to let you enjoy with us, the hereto unprinted subject matter about the students and professors of The School of Agriculture.

* * *

Producer-director R. E. "Frog" Ware has declined all reports that Hollywood was going to nab him before the end of this semester. Professor Ware just wears those dark glasses because of the sun, you know.

"Stud" Klettner and Carl Lowder plan to motor to Miami this summer in their new convertible Cadillac. Where is the money coming from? Don't be in the dark any longer, fella' — from the 1948 C.D.A. "take" of course ! ! !

* * *

Henry Black is now taking barbell exercises. Mr. Hanckel's little boy, "Sonny", lends them to him for the price of an ice cream cone each hour. Henry's exercises are part of a plot to "get Zeke Hiott", who took his girly at the last Coker dance. Anybody know what "The Zeke" plans to do about it?

* * *

"Fog" Booth recently joined the Young Ladies Mid-Week Tea Sorority of Converse College. Between sips, "Fog" lectures to them on the advantages of having a farmer for a husband. Maybe we could get him to speak at the "Y" on Sunday night when all the local "yard engines" are present.

* * *

Is it so that "Mumbles" Walker of Manning, plans to lecture to the student body of the "Zoo" on "How a Furman gal won a Clemson's man's heart."? Just can't figure if he's talking about himself or "I'm on the Tiger Staff" Reynolds.

They tell this on Dr. Collings. A group of students, assembled in front of the post office, were telling a poor freshman about the wrath of "Lord" Collings. Their conversation went like this. "You don't stand even a slim chance in agriculture unless you make it a point to speak to 'The Lord' whenever and wherever you see him." This and other remarks had made the freshman about as frightened as a freshman gets — and brother, when you get that way, you're panic stricken. Along then, out of nowhere, came Dr. Collings. The freshman, noticing Dr. Collings, became stone-stiff with fear. What hair he had stood on end. The others, becoming aware of the delicate situation, held their breath. It seemed like hours before the freshman stammered, "Hello God".

* * *

Have you noticed the left side of "Earthquake" King's face. We have often wondered why the left eye is always red on Monday mornings? On his "gun run", whatever that means, between LaGrange, Ga., and Clemson he keeps this portion of his face exposed to the cool Georgia air. Now, just why does he do this?

* * *

'Guess that's about it for this time. Oh, yes, Professor "Strib" Stribling wishes us to announce that he is NOT a candidate for the Presidency in the coming Democratic Convention.

VOCATIONAL EDUCATION

(continued from page 24)

to appropriate money and regulate its expenditure."

Sections 2, 3, and 4 of the act provide for appropriation of funds for three different purposes. In cooperation with the states it provides for the payment of salaries of teachers, supervisors and the directors of agriculture subjects. The same provision is made for teachers of trade, home economics, and industrial subjects; and finally the funds are to be available for the training of teachers of agriculture, trade, industrial and economics subjects. The whole plan of the act would be to no avail if it did not provide for the training of teachers in these subjects. The practical and the theoretical aspects of the subjects have been mastered by the prospective teacher of these subjects to accomplish the purpose of the act. In agriculture and home economics as well as in some fields of the trades and industry the colleges turn out young men and women who have the foundational training necessary to teach these subjects, but who must take work in the theory and practice of teaching before they can hope to be successful as teachers.

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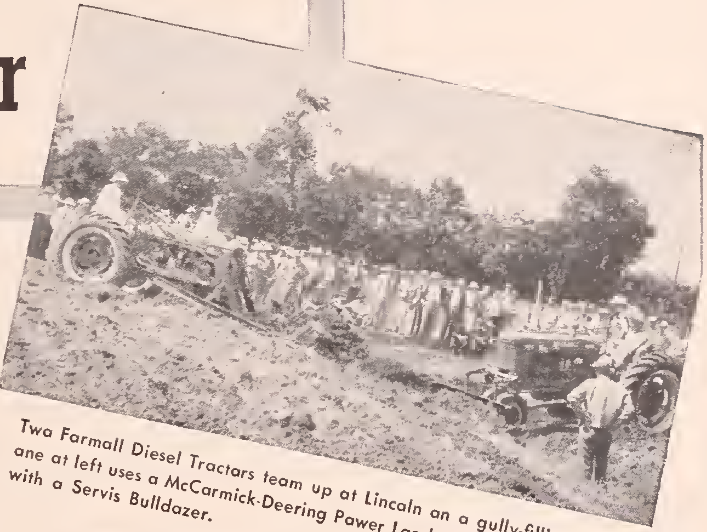


Two Farmall Diesel Tractors team up at Lincoln on a gully-filling job. The one at left uses a McCormick-Deering Power Loader; the other is equipped with a Servis Bulldozer.

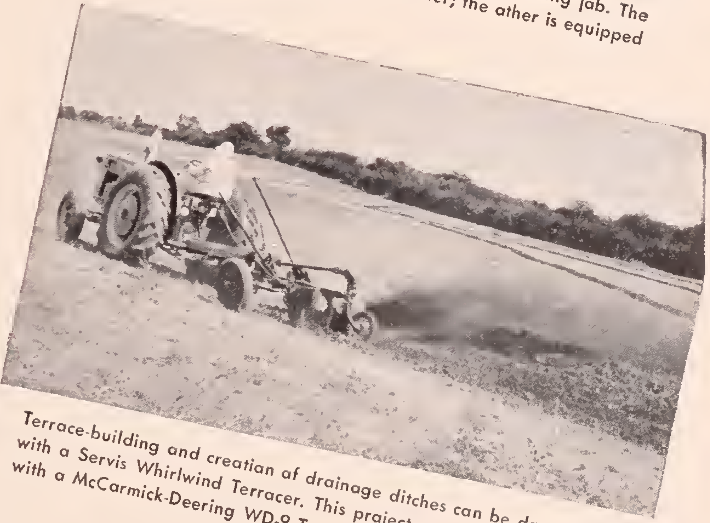
International Harvester has long subscribed to the principle that if there is to be a "tomorrow" for both agriculture and industry, soil conservation practices must be carried out today.

To promote this modern farming, the company last fall held the fourth and fifth of a nation-wide series of In-Service Training Courses on farm machinery for Soil Conservation Service personnel. They were staged in Region Five, Lincoln, Nebr., and Region One, Hershey, Pa.

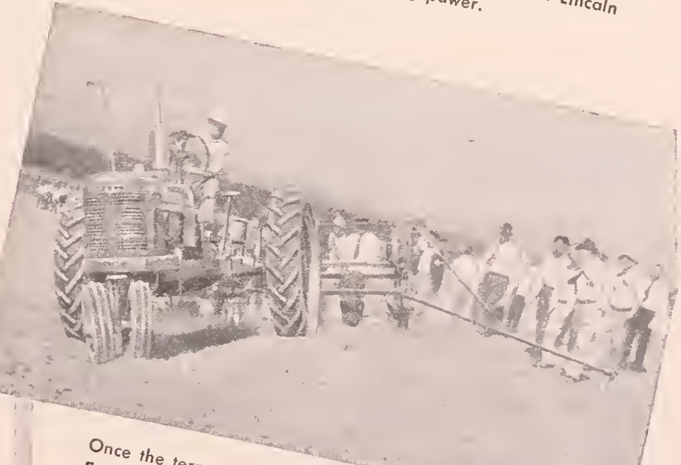
Thousands of soil conservationists, agronomists, county agents, farmers and farm equipment dealers attended these meetings to watch machines fight "land on the move." The accompanying illustrations show how problems of terrace-building, gully control and retaining of top soils, among others, were mastered.

These men, supported by International Harvester and the IH Dealer in your home town, form an army that is waging a great peace-time battle: the conservation of the land, our greatest heritage. We encourage everyone who daily lives and works with American farmers to assist in the program of soil and water conservation.

If the farmer is to prosper—and with him, the rest of the nation—*soil must be made and kept productive!*



Terrace-building and creation of drainage ditches can be done in a hurry with a Servis Whirlwind Terracer. This project was carried out at Lincoln with a McCormick-Deering WD-9 Tractor supplying power.



Once the terrace is built, what about planting on its side? This Farmall H with McCormick-Deering Beet and Bean Planter demonstrates to an interested group at Hershey just how it's done.

Want to know more about soil conservation? Then write for this FREE booklet titled "Let's Practice Soil Conservation." Address Consumer Relations Dept., International Harvester Company, 180 N. Michigan Avenue, Chicago 1, Illinois.

AMONG OUR ALUMNI

1918

Thomas L. Ayers, V.A.E., is Chief of the Program Planning Division of the Agricultural Conservation Branch of the Production and Marketing Administration, Washington, D. C.

George E. Freeman, V.A.E., is State Director of Vocational Education, Nashville, Tenn.

1920

A. L. DuRant, A.H., is South Carolina Extension Livestock Specialist and is at present living at Florence.

1921

Dr. Julian Miller, Hort., is head of all Horticulture Research at Louisiana State University.

1927

R. D. Anderson, V.A.E., is State Supervisor of Agricultural Education, State Department of Education, Columbia, S. C.

Claude E. McLeod, Hort., is now truck farming in Seabrook, Beaufort County.

1930

Frank C. Bouknight. Ag. Ec., is working with the USDA, Production and Marketing Administration as a specialist in cotton classing. His home is Jackson, Mississippi.

Dr. George H. Wise, Dairying, is Associate Professor of Dairying at Iowa State College, Ames, Iowa.

1931

Dr. William C. Barnes, Hort., is now Superintendent of the South Carolina Truck Experiment Station at Charleston, S. C.

Ralph H. McGee, Dairying, is Plant Superintendent at Coburg Dairy, Charleston, S. C.

M. C. Rochester, Ag. Ec., is Leader in Agricultural Economics with the Agricultural Extension Service at Clemson. Dr. Rochester holds an M.S. degree from the University of Florida and a Ph.D. degree from the University of Wisconsin.

T. T. Traywick, A.H., is a breeder of Berkshire hogs and Angus cattle at Cope, S. C.

1932

Dr. Fred D. Cochran, Hort., is in charge of Vegetable Research at North Carolina State College, in Raleigh, N. C.

Samuel D. Watson, Hort., is a nurseryman and pecan grower at Orangeburg, S. C.

1933

John L. Fulmer, Ag. Ec., is doing research work and teaching Economics at the University of Virginia. Dr. Fulmer has received graduate degrees from Cornell and the University of Virginia.

T. P. McKellar, Dairying, is part owner of Mapleview Dairy, Asheboro, N. C.

O. Romaine Smith, Ag. Ec., is District 4-H Club Agent for the South Carolina Extension Service and is located in Aiken.

1934

Dr. Carlyle N. Clayton, Hort., is a plant pathologist at North Carolina State College at Raleigh, N. C.

1935

D. W. Anderson, A.H., buys livestock for the White Provision Company and at present he is located in Atlanta, Georgia.

W. M. Dillard, Ag. Ec., is coach at the Anderson High School and part owner of a sporting goods store in Anderson.

W. B. McConnell, Dairying, is production Manager at Foremost Dairies in Miami, Florida.

1936

D. E. Crawford, Ag. Ec., is Assistant Agricultural Economist on the staff of the South Carolina Experiment Station at Clemson.

R. L. Jones, A.H., is managing the Mount Pleasant Plantation at Andrews, S. C.

D. A. Shelley, A.H., is County Agent of Barnwell County.

1937

E. M. Alexander, Ag.Ec., is Deputy Collector of Internal Revenue for the U. S. Treasury Department and is located in Chester.

J. M. Jeter, A.H., makes his home in Union, S. C., and is Field Agent for the Guernsey Breeders' Association.

1938

J. C. Shelley, A.H., works for the Allied Feed Mills of Columbia.

A. V. Bethea, Ag. Ec., operates a farm and other business enterprises at Dillon, S. C.

1939

Charles M. Aull, Ag. Ec., is Chief of the Rehabilitation Advisory Unit of the Veteran's Administration in Louisville, Kentucky. He received his Master's degree from the University of Kentucky.

T. E. Bell, Jr., A.H., is buying livestock for Kingan and Company of Orangeburg.

John F. Brailsford, Hort., is a nursery owner and farmer at Orangeburg, S. C.

Roy J. Ferree, Hort., is Extension Horticulturist with the South Carolina Extension Service and is located at Spartanburg, S. C.

J. S. Baskin made the Army his career. and now holds the rank of major. He is now at Fort Benning, Ga. where he is engaged in writing texts for ROTC and National Guard Training.

F. G. Dobbins. after being connected with the Soil Conservation Service in Columbia for a number of years, has returned to Townville and is farming there.

W. J. Oates holds the position of Associate Agricultural Engineer at Oklahoma A. & M. College in Stillwater, Okla.

1941

J. C. P. Agnew is farming at Anderson and is also Secretary-Treasurer of the Anderson Production Credit Association.

The Coakley twins are both captains in the Army. George is stationed at Clemson on the military staff of the college and F. H. is Historical Editor in National Archives at Washington, D. C.

C. D. Cannon is Assistant Sales Manager at Coker Pedigreed Seed Co., in Hartsville.

T. V. Wilson is graduate assistant at Purdue University, Lafayette, Indiana.

L. C. Hammond was married recently to an Iowa girl where he is in graduate school.

1942

J. D. Dusenbury, Ag. Ec., lives in Florence where he is farming. Julian is State President of the Disabled Veterans Association.

1943

Charles B. Fellers, Ag. Ec., is sales representative for the American Hospital Corporation with headquarters in Charlotte, North Carolina.

EASY MONEY DEPARTMENT

Forget the principle of the thing—this is money! That's right—legal tender . . . in folding quantities . . . as high as fifteen bucks—that's what Pepsi-Cola Company pays for gags and such-like you send in and we print. Procedure? Simple—send your stuff, marked with your name, address, school and class, to Easy Money Dept., Pepsi-Cola Co., Box A, Long Island City, N. Y. All contributions become the property of Pepsi-Cola Co. We pay only for those we print.

Will getting "Pepsi-Cola" into your gag hurt its chances? Don't be naive, chums. We *like* it. So, if you should wind up with a rejection slip clutched in your hot little fist, *that* won't be the reason. Well, don't just sit there! Pick up that pencil—get your stuff started now. There's Easy Money waiting!

LITTLE MORON CORNER

Here's the gag that won a M. M. (Master Moron) degree—and a fast two bucks—for *Ben Ornoff, of Univ. of North Carolina*, in the November contest:

Our minor-league moron, Mortimer, caused considerable furore in local circles by entering one of our better bistros and calling for a Pepsi-Cola. When served, he proceeded to glug it down with not one, but six, straws. Questioned as to his motives, Mortimer carefully removed all six straws from his mouth and replied with considerable hauteur: "So I can drink six times as much Pepsi, natch!"

Earle S. Schlegel of Lehigh Univ. also came up with two bucks for his moron gag. Why don't you get on the gravy train? Two bucks each for every moron joke we buy.

HE-SHE GAGS

Put one and one together—and you get a He-She gag. Three bucks each to *Duane O. McDowell of So. Dakota State College; Albert M. Dredge of Duquesne Univ.; Emmett Carmody of Manhattan College;* and *Alfred Shapiro of New York Univ.*, respectively, for these specimens:

She: And what position do you play on the football team?

He: Oh, sort of crouched and bent over.

* * *

She: Why don't you park the car by this sign?

He: You're not allowed to park here.

She: Don't be silly. The sign says "Fine for Parking"!

* * *

He: Your eyes sparkle like Pepsi-Cola.

She: Tell me more. I drink it up.

* * *

She Scot: Sandy, 'tis a sad loss you've had in the death of your wife.

He Scot: Aye, 'tis that. 'Twas just a week ago the doctor told her to dilute her medicine in Pepsi-Cola, and she hadna' time to take but half the bottle.

* * *

Current quotation on these is $3 each for any we buy. Sure, but everything's over-priced these days.

EXTRA ADDED ATTRACTION

At the end of the year, we're going to review all the stuff we've bought, and the item we think was best of all is going to get an extra

$100.00

—— DAFFY DEFINITIONS ——

We're not just sure who's daffy—but we sent one frog apiece to *Don McCauley, Baylor Univ.; Edward Whittaker, Boston Univ.; Joy Duvall, Univ. of Chicago; Charles R. Meissner, Jr., Lehigh Univ.;* and *James O. Snider, Baylor Univ.*, for these gems:

Lipstick—something which adds color and flavor to the old pastime.

Controversy—one Pepsi—two people.

Worm—a caterpillar with a shave.

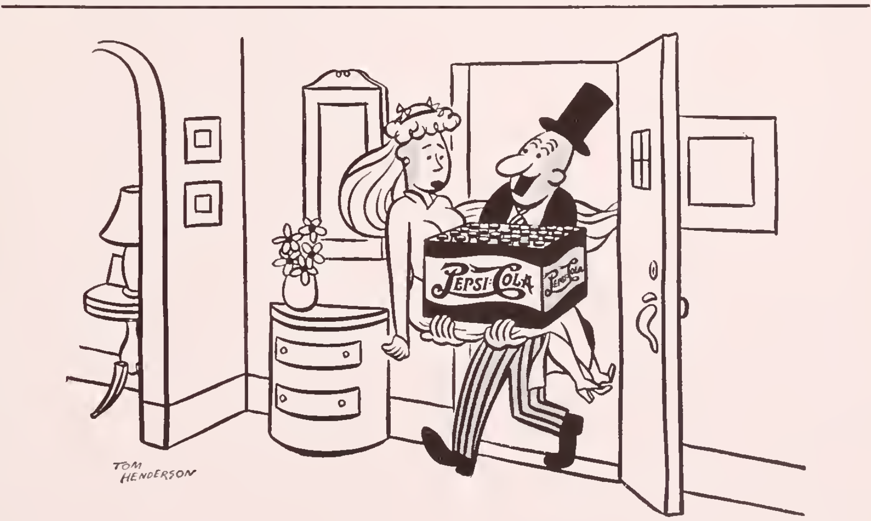
Rival—the guy who gives your girl a Pepsi.

Steam—water gone crazy over the heat.

* * *

So we're subsidizing lunacy. Okay—but it's still a buck apiece for any of these we buy.

GET FUNNY...WIN MONEY...WRITE A TITLE



"--"

Ever play "pin the tail on the donkey?" Well, this is pretty much the same idea—and never mind the obvious cracks. $5 each for the best captions. Or send in your own idea for a cartoon. $10 for just the idea . . . $15 if you draw it . . . if we buy it.

Here's how we split the take for cartoon drawings, ideas and captions in the November contest: $15 each to *Jay Gluck of Berkeley, Calif.* and *Herbert John Brammeier, Jr. of St. Louis Univ.;* $10 to *H. Dick Clarke of Univ. of Oklahoma;* and $5 each to *Virgil Daniel of George Washington Univ., Frances Charlton of William and Mary College,* and *Sidney B. Flynn of St. Louis Univ.*

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The Agrarian

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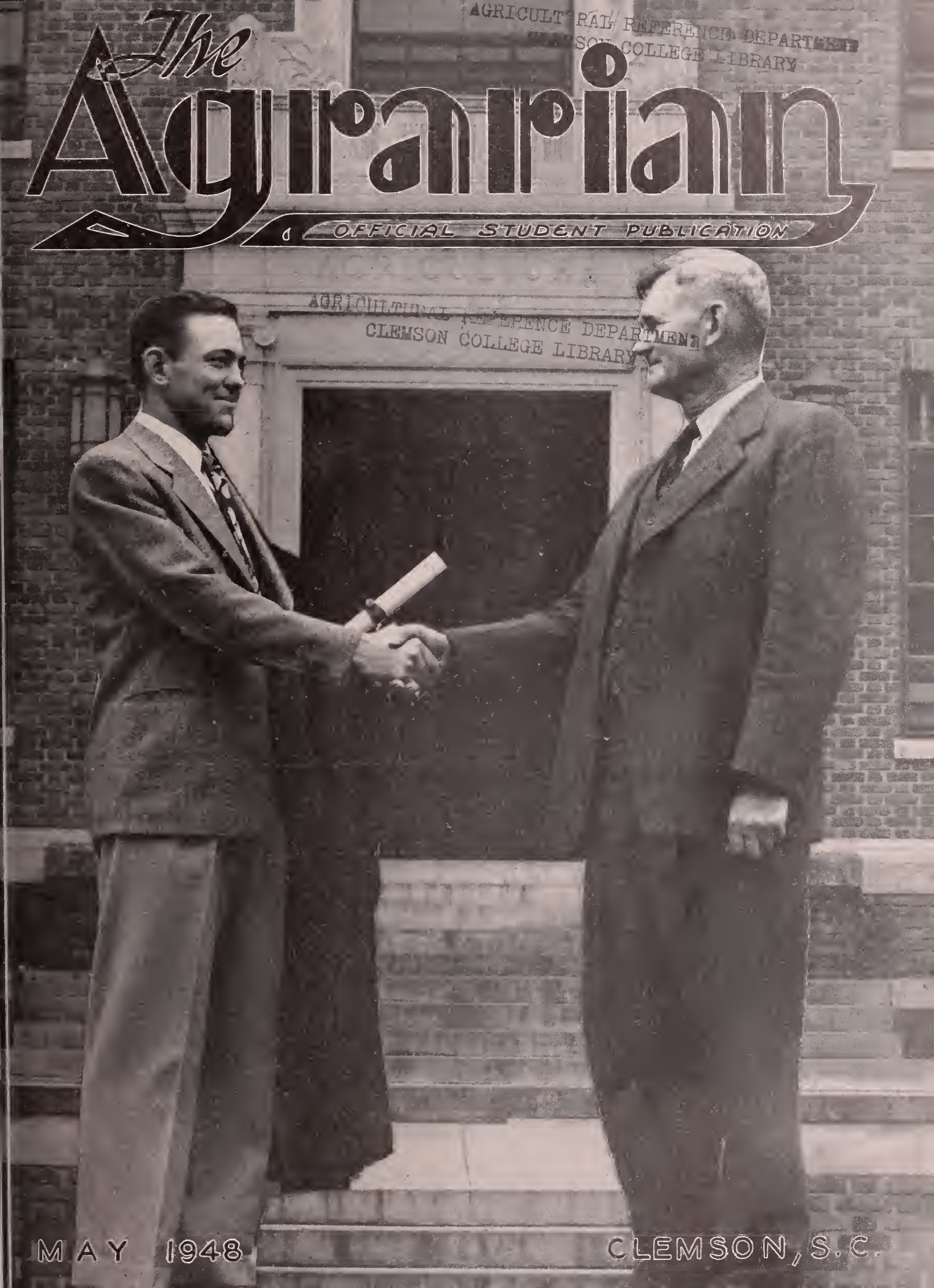

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MAY 1948

CLEMSON, S.C.

IT TAKES EXPERIENCE TO SKIM THE SURF AT

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I LEARNED BY EXPERIENCE... BY COMPARING... THAT CAMELS SUIT MY 'T-ZONE' BEST!

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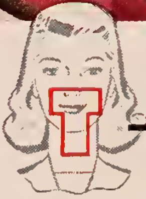

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The Agrarian

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COVER — Dr. H. P. Cooper, Dean of the School of Agriculture, congratulates Gilbert Hardee on his graduation. Gilbert plans to work toward a graduate degree in Agricultural Economics at the University of Kentucky.

Set Your Sights on High Producers

● All your art as a cattle-feeder . . . all the costly corn, concentrates and high-quality hay you feed your steers or heifers . . . cannot bring high returns unless you begin with calves bred for beef. In their background of breeding must be the capacity to convert coarse feed into fine food.

Yet the figure that counts in the end is not the weight of beef per bushel of feed. It is rather the dollar-value per hour of human toil—not only in care of the herd but also in growing the feed. It's the over-all *yield per man-hour*.

Case tractors and farm machines have the background . . . you might call it the breeding . . . of 106 years' experience. They are developed to get more farming done per day of work, to boost the final yield per man. Count on Case machines as you plan your farming career. J. I. Co., Racine, Wis.

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From windrow to wagon, the Case Slicer-baler puts up hay with less labor per ton. Its gentle pick-up and side feed save more leaves, preserve more protein. Sliced-Hay bales need no tearing apart, minimizing leaf-loss at the feedlot, adding to the yield of meat or milk per acre and per man-hour. It's the baler used by more farmers than any other. It's so low in cost that most any farmer can have his own.

Agricultural Opportunities in Industry

By GEORGE F. MITCHELL

George F. Mitchell graduated from Clemon in Horticulture in the Class of 1902 and has since gone far in the busines world.

He has served as manager of the Maxwell House Tea Division of the General Foods Corporation since its formation in 1929. He recently retired from active service but still remains in the capacity of independent consultant in matters pertaining to the procurement, blending, and processing of tea.

Opportunity for the agricultural graduate is practically unlimited as far as private industry is concerned.

Though there are no statistics available, more and more agriculture specialists are turning to industry as an enjoyable and well-paying outlet for their talents. I believe more and more boys entering agricultural colleges today have industry in mind and plan their courses accordingly. On the other hand there are still large numbers, like myself, who broke into business organizations more or less by accident.

It would be impractical to advise you as to the course you should take if you are planning an industrial career. The main reason for my saying this is that the jobs are too varied.

They range from anything to pure horticulture research as done in our special Birds Eye frozen food laboratory in Albion, N. Y., to the position I recently held as plant manager of a plant.

But let's review a few opportunities; (And I think the best way is to give a few specific examples.)

I mentioned the horticulture lab, we maintain for our frozen foods. You might ask what such a group could find to keep itself busy day in and day out. My answer is "plenty."

Just one item that the Birds Eye horticulturists turned up came from an intnesive study of green peas. Though there are more than one hundred varieties of green peas which can be grown on the ordinary truck farms, only **four** are desirable for high quality quick-frozen products. After the boys had confirmed this information, they found themselves faced with the big job — that of informing the farmers what varieties Birds Eye would buy.

This meant that the Birds Eye "farm agents" whose annual mileage in rural areas runs into tens of thousands of miles had an education job on their hands. Farm agents — why yes, that's another job for you future graduates of Clemson Agricultural School. These men supplement the work of the state men.

At our Igleheart plant in Evansville, Indiana we are anxious to secure a certain quality soft wheat. The only way we can get farmers to grow this wheat is to tell them about it. So, Igleheart in cooperation with Purdue University maintains another "farm agent"to transmit knowledge of wheat to the farmers of eight southwestern Indiana counties. Contests are even conducted among wheat farmers with the "Igleheart watch" going to winners, and scores of lesser prizes going to fathers as well as to 4-H clubs.

Industry offers golden opportunities for experts on all grains or food animals. Most industries have their own buyers. If they don't, large brokerage concerns do have constant call for trained men to do this important job of acquiring raw materials.

General Foods has eight research laboratories and 42 control laboratories. Work done in these laboratories varies from basic to applied research. Thus any graduate will find a great deal of company among the men who are now working as food technologists or bio-chemists throughout the research system.

Most packaged food products are derived from plants. All along the lifeline from the farm to the finished product there are openings for experts on all phases of food.

Along our production lines we must have experts who know what types of wheat can be blended to make good flour or what coffees contribute to the blend consumers like best, or which teas will produce a blend that will increase sales.

Merchandising activities might not seem to be a possibility but if you have a bent for writing don't overlook it. The good advertising copy is based on fact. This is also true about publicity material. So, if you decide to become a writer, get in on the technical side; your many hours of study won't be lost.

There is a place in industry for you. Don't go into it with the idea you are in for one of those soft, swivel-chair jobs. You better plan to work harder because industry is in business for keeps — its livelihood depends on what you and the other individuals produce. What you do **has** to be good — in fact it has to be **more** than just good, because you are competing directly with the fellow who has a job like yours with another company.

If you are yearning for a life of hard work — filled with plenty of security, combined with personal advancement — turn to industry. Its opportunities are almost endless.

Dr. Poole Urges More
Graduate Work at Clemson

Everywhere, in colleges and in industry, men of vision and of high intellectual attainment are being sought. It seems inevitable that this is a normal process in keeping with progress and the needs of men who will solve the problems which seemingly are increasing in our state and nation.

The men in greatest demand are for the most part a product of graduate schools. It is in these schools that their intellectual curiosity and their search for truth have wide range. Clemson must now enter this field of higher education.

In the first place, a graduate school could materially stimulate the faculty by broadening their scholarly and scientific horizons and indirectly increase their interest in undergraduate teaching. Secondly, it would enable students qualified for graduate work to match their inspirations in a manner with creative attainments.

The policy of adding to and strengthening the work of each department rather than adding new curricula in the undergraduate field fits into the plans for graduate work. The chief interest must by necessity center around the Master of Science degree, but there will be opportunities in certain departments for candidates to work for the Doctor of Philosophy degree.

A strong graduate committee has been at work for nearly two years perfecting the program and it has already adopted methods of procedure and approved courses. The committee has not yet selected a graduate faculty but has given some attention to the question of who shall be allowed to offer graduate work.

Many Clemson graduates have gone elsewhere to do graduate work. A graduate program at Clemson would encourage more of them to study in the prominent graduate schools of the nation and at the same time place Clemson in its rightful position with other recognized institutions of the nation.

Dr. Poole awarding diplomas at recent graduation exercises.

1948 GRADUATES OF THE SCHOOL OF AGRICULTURE

Agricultural Economics

J. O. Gerald, J. G. Hardee, L. T. Judy, L. H. Trotti, J. N. Young.

Agronomy

H. F. Beach, L. S. Bird, E. F. Carnell, W. T. Clayton, A. B. Coleman, T. L. Drummond, R. C. DuBose, W. H. Funchess, A. S. Gramling, R. W. Kay, C. H. Key, T. B. Laney, C. W. Leavell, R. D. Morgan, D. P. Rochester, H. V. Rogers, D. B. Rosenkrans.

Animal Husbandry

O. E. Baxley, L. F. Cato, S. E. DuRant, W. R. Flemming, C. E. Haines, W. H. Kennick, H. G. McColl, J. H. Rogers, I. N. Rizer, E. G. Tate, H. Z. Woodfin.

Animal Husbandry and Vocational Agricultural Education

M. P. Zuver

Dairy

J. F. Causey, C. G. Coclin, S. M. Frazer, J. G. Hagen, R. M. Hanckel, R. B. Pursley, C. Shuman, M. B. Smith.

Entomology

M. M. Askey, L. H. Moore, E. C. Turner.

Horticulture

R. H. Bowers, L. H. D. Boykin, F. C. Emanuel, R. J. Higdon, E. A. Lindenberg, W. J. Park, J. S. Rodgers, H. D. Taylor.

Agricultural Engineering

F. P. Bradford, C. Carmichael, W. B. Chastain, M. B. Hall, M. W. Loupo, F. C. Lucius, C. M. Lund, F. K. Norris, V. K. Quattlebaum, E. B. Rogers, J. H. Shirer, C. C. Vaughn, W. W. Woodson.

Vocational Agricultural Education

M. O. Alexander, R. V. Boggs, C. C. Carter, E. T. Chandler, D. C. Evans, E. W. Freeman, C. B. Gambrell, T. W. Gladden, D. P. Gohagen, W. L. Haltiwanger, G. J. Harris, T. E. Hill, E. E. Lane, J. G. Lesley, C. E. Lowder, A. D. Orander, V. O. Snelgrove, D. K. Stokes, R. E. Stone, B. Todd, S. O. Tomlinson, S. P. Wright.

A True Native of the Old South

The southern highbush blueberry possesses many unknown outstanding qualities which if properly cared for may make its production profitable for commercial uses.

A typical rabbiteye bush in full production

By LEE DeYOUNG
Horticulture, 1949

The southern highbush blueberry, commonly called the rabbiteye (Vaccinium ashei), is as truly a native of the old South as a bona fide mint julep, and can trace its southern ancestry back long before the advent of that aristocrat of southern refreshments. However, until recent years much more energy was expended on taming and refining the mint julep than the rabbiteye.

Native to areas of north Florida, south Georgia and southeast Alabama, the rabbiteye has long been a delicacy of the wild, and is sought after for such practical purposes as blueberry pie and just plain good eating. Growing to a height of 15 feet and bearing its berries in clusters, the wild rabbiteye can be found growing under both upland and lowland conditions throughout the deep South.

More than 3,500 acres have been planted to rabbiteye blueberies, principally in north Florida, but also in North Carolina, South Carolina, Alabama, Georgia, Mississippi and Louisiana. However, these plantings were largely of transplanted bushes from the wild and did not produce fruit of the uniformity or equality necessary to create an established commercial industry.

Limitations of the wild rabbiteye as a commercial fruit include such characteristics as seediness and grit cells, late ripening, long picking season and dark blue to black color. The rabbiteye possesses several outstanding qualities, however, which make it highly desirable to breed varieties suitable for commercial production. Among these merits are heat and drought resistance, extreme vigor and its fine scar.

Agricultural research workers and plant breeders of the U. S. Department of Agriculture Bureau of Plant Industry and southern state experiment stations have been engaged since 1940 in the selection and breeding of wild rabbiteyes in an attempt to eliminate undesirable characteristics and establish named varieties suitable for commercial production and small fruit plantings in home gardens.

The first crosses of wild rabbiteye plants selected for their superior qualities were made by the Bureau of Plant Industry at Beltsville, Maryland in 1940. Progress has been rapid and several named varieties possessing superior fruiting qualities have been developed.

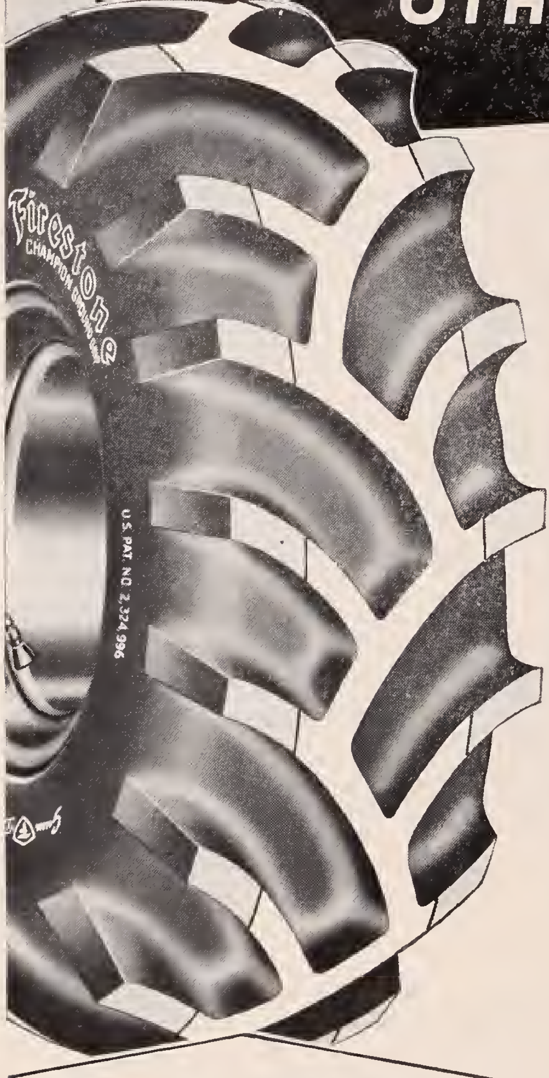
H. J. Sefick, associate horticulturist at Clemson, is at present engaged in adaptation studies for South Carolina of known crosses made at Beltsville. Five hundred seedlings have been raised at Clemson from these crosses, and 5 plants each of 20 different seedling selections were set out this year, as well as 3 named varieties through the cooperation of the Bureau of Plant Industry and the Georgia Coastal Plains Experiment Station at Tifton, Ga.

Six year old seedlings of known

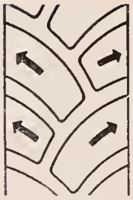
(continued on page 7)

These **FACTS** tell you Why...

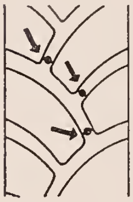
Firestone CHAMPION GROUND GRIPS OUT PULL ALL OTHER TRACTOR TIRES



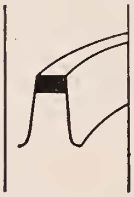
The Only Tire That Takes a "CENTER BITE"



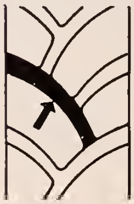
The Champion Ground Grip Outpulls Because . . . It cleans better. Its curved traction bars flare out from the center to make a wide open unrestricted exit for mud and trash. There are no broken center trash catchers.



The Champion Ground Grip Outpulls Because . . . The Triple-Braced traction bars take a full, firm bite right in the heart of the traction zone. There are no broken center traction leaks.



The Champion Ground Grip Outpulls Because . . . The tread bars are higher — up to 24% higher to take a deeper, firmer bite. Of course, higher bars last longer.



The Champion Ground Grip Outpulls Because . . . The tread bars are longer — as much as 256 inches per tractor. Greater tread bar length naturally gives greater pulling power — and longer wear.

The Champion Ground Grip Outpulls Because . . . The traction bars are higher at the shoulders for reserve pulling power, especially in soft ground where it needs the extra pulling power of an extra bite.

Copyright, 1948, The Firestone Tire & Rubber Co.

Put CHAMPION Ground Grips on Your Tractor

LET THE TEST TELL THE TRUTH

THE AGRARIAN PRESENTS - - -

Dr. Victor Hurst

Clemson's Only Endocrinologist and Physiologist

By FRED K. NORRIS
Agricultural Engineering, 1948

Dr. Victor Hurst, one of our most recent additions to the Dairy Department faculty, was born in Rutherford, N. J. and attended public schools there until his graduation from Rutherford High in 1933. Dr. Hurst then entered Rutgers University. Here he decided to major in Dairy Husbandry. His interest in this type of work was influenced by his work during his summers in high school. His work on his brother's farm as well as working with Herd Improvement and Advanced Registry testing influenced him in deciding to do this type of work.

Dr. Hurst was very outstanding in extra curricula activities while at Rutgers and especially in his professional line of work. He was on the track team for four years and captain of the team his senior year. This earned him membership in the honorary track fraternity, "Spike and Shoe". Perhaps of more value to him in later life was the winning of the "Best Senior Award" presented to him by the Rutgers Chapter of Alpha Zeta, honorary agricultural fraternity of which he was Chancellor.

Dr. Hurst graduated from Rutgers University in 1938 and accepted a position there as Graduate Assistant to work on his Master of Science Degree. He worked on this degree for two years and earned for himself membership in the top honorary scientific fraternity, Sigma Xi. He finished his Master of Science Degree in 1940 and accepted a position as Research Assistant at the University of Missouri. Here he worked in research and on his Ph.D. degree at the same time under the noted dairy scientist, Dr. C. W. Turner. His work was interrupted in 1942 and he resigned his assistantship to join the Coast Guard in which he served 4 years.

Upon his discharge from the Coast Guard in January, 1946 he continued where he had left off work on his Doctor's degree and finished it at the University of Missouri in January, 1948. Immediately following his work there he attended an Artificial Insemination course at Cornell University before coming to Clemson in April of this year.

When asked why he decided to come south and work at Clemson he said he believed that the South had the greatest potential for dairying because of its large amounts of permanent pasture and relatively cheap labor. Another question which came to mind was to ask him exactly what his position was here at Clemson and he answered with Physiologist and Endocrinologist—I let it go at that. He also stated that his work also involved research with Artificial Insemination which was started in this state in 1945, and is carried on here at Clemson in a special project.

Dr. Hurst has also distinguished himself in his field, being a member of Gamma Sigma Delta (honorary agricultural fraternity) and recently the South Carolina Academy of Science.

While new at Clemson himself, Dr. Hurst has stepped right in line with his work here and is making outstanding progress and improvements in the field of artificial insemination with dairy cattle.

Rabbiteye Blueberries

(continued from page 5)

crosses have yielded from 5 to 6½ quarts per plant at Clemson despite dry weather which reduced size.

It has been found that the rabbiteye blueberry prefers an acid soil with a pH ranging from 4.5 to 5.5. Well drained, loamy sand soils liberally supplied with humus and retentive of moisture are ideal for this crop. However, the plants are growing well at Clemson in gravelly, sandy clay loam of pH 5.7 to 6.3. Mulching increases vigor and yields in upland soils.

Named rabbiteye varieties have been secured in small plantings by at least 15 South Carolina farmers this year. With current breeding work and adaptation studies of Mr. Sefick and others showing great promise, it may not be long before farmers can have a new cash berry crop and home gardeners can have a blueberry pie right in their back yard. It's even possible that comedians and radio announcers will have an eighth "delicious flavor" of their sponsor's product to chant across the air waves of the nation.

Coker's Pedigreed Seed Co.

The South's Foremost Seed Breeders

HARTSVILLE, SOUTH CAROLINA

FOR BEST RESULTS

Plant ANDCO Seeds

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TENNESSEE BASIC SLAG

More Purebred Sires Needed in State

The Basis for Needed Improvement in Beef Herds In State Lies With The Securing of Better Bulls

By HARRY FALLS, Jr.
Animal Husbandry, 1949

South Carolina is one of a large group of states whose production of meat animals fails to supply the needs of its consumers for this item of diet. At the present time there is an urgent need for a marked increase in livestock production to meet the demands of a growing population. Obviously, a feasible and desirable way to achieve this end is the utilization of more purebred sires in the herds and flocks of this state.

Varied results of many experiments and all past experience show that there are certain positive, worthwhile, and economical features accruing from the use of purebred sires. Briefly, animals sired by a purebred sire have a greater earning capacity, mature earlier, give greater expression to characteristics typical of the breed to which the sire belongs, are less subject to the ravages of disease, and command higher receipts on the market.

Beef animals sired by a purebred have a thirty-seven percent greater earning capacity than those sired by a scrub. Comparing the receipts from an animal sired by a scrub bull and one sired by a purebred bull, on the basis of weight and price at the time of marketing, it is found that the latter calf is more valuable than the former by approximately $35.00. This is true because the calf sired by the purebred animal attains market weight sooner, has more scale, and usually sells at a higher price. The production of twenty-five calves in a year ordinarily would pay for a purebred sire in one year, considering the figure mentioned above.

A purebred sire is prepotent and the offspring will bear more characteristics peculiar to him than those of the scrub. This is nothing more than the positive expression of the genetical factor that like produces like. Increasing the desirable qualities in a herd can be achieved easily within three or four generations. One mature bull can service about fifty cows, and this makes for the transmission of his characteristics thruout all the offspring of the entire herd. The use of a purebred sire soon brings the genotype and phenotype of one's herd up to what almost duplicates the purebred.

The use of purebred sires improves the herd to such an extent that the producer invariably manifests such an interest in his herd as to greatly reduce losses through disease and mismanagement. Herds of pronounced blood lines more frequently are tested for such diseases as "Bang's" and tuberculosis; in short they're not left to shift for themselves on the wholesale scale as are scrubs.

Lastly, it is highly important to consider this matter from an aesthetic standpoint. The animal carrying blood from a purebred sire is always the animal most pleasing to the eye. A herd of this kind will continually enhance the owner's interest, and desirable attainments within the herd would spur the producer to greater activity. There is always that something about the "best" in any field that makes room for the element of pride to grasp success when other mediums have failed. Animals displaying superior breeding to that of the scrub demand the best in feeding and management, and the production methods and practices that will require the more proper and adequate treatment and utilization of the soil. The use of purebred sires in the herds and flocks of South Carolina will tend toward the more complete realization of a largeness, fullness, and completeness in the agriculture of this State.

There has been noted improvement in the "grading" of livestock in South Carolina during recent years. However, more effort in this respect would be highly beneficial to agriculture in this state now and in the future. Improving of the blood lines of South Carolina's livestock will work toward the confirmation that

"Agriculture is not merely a means of making a living, it is also a method of life."

One of the purebred Polled Hereford bulls in the Clemson herd, Battle Domino 11th.

BETWEEN THE

STUDENTS ATTEND FIELD DAY

On May 12, the students majoring in Agricultural Engineering and the faculty from that department journeyed to Winder, Georgia to observe the Master Conservation Field Day held on the Carlyle-Blakely farm. The demonstration which was a continuous all-day demonstration on land use and soil and water conservation practices was sponsored jointly by the Supervisors of Oconee River Soil Conservation District, Winder Civic Clubs, and The Atlanta Journal.

Over 600 men and all types of machinery and equipment made possible the biggest farm demonstration the South has ever seen. Completed in one day, an eroded, run-down farm was renovated into a modern, pastured, livestock farm. Eroded gullies were filled by dynamiting, fields were terraced, plowed, limed, fertilized, and seeded in pasture grasses. Irrigation equipment to supply a large portion of the farm was set up and completed. Power saws were demonstrated for thinning small timber and cutting pulp wood as many acres of woodland was cleared. Barns were constructed and painted, and the 168 acre farm was fenced and cross fenced for cattle. Drainage channels were straightened, and a two-acre fish pond was constructed and stocked with fish.

This demonstration was made possible thru the various farm equipment companies who used different sections of the farm to demonstrate their most modern machinery under actual operating conditions. This equipment was furnished by branches of the various companies in Winder and nearby Atlanta.

Featured on a formal program held in the afternoon were addresses by Governor M. E. Thompson; Dr. H. H. Bennett, Chief, Soil Conservation Service, Washington, D. C.; Wright Bryan, Editor, The Atlanta Journal; and Rev. E. H. Collins, who presided at the program.

DAIRYING SENIORS TOUR SOUTH

On Thursday, April 8 nine senior students majoring in dairying left on a four day trip to all the major dairy plants and farms in the southeast. Students making the trip were L. D. Carter, R. M. Hanckel, J. E. Pettigrew, W. A. Smithwick, S. M. Frazer, C. J. Senn, C. M. Shuman, J. F. Causey, and M. B. Smith. This group was accompanied by Prof. B. E. Goodale.

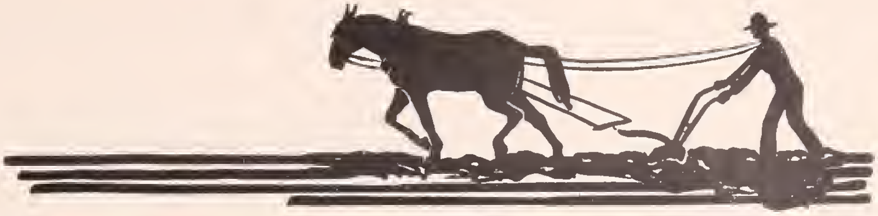
The first stop on this trip was Greenville, S. C. where they were conducted through the Pet Milk Co. plant and Leake Brothers plant. After leaving Greenville, the group journeyed on to Asheville, N. C. where they visited the modern dairy barns of the Biltmore Estate, which is one of the few millionaire estates in the United States that is making money. Also at Asheville the group visited the Southern Dairies and Skyline Dairies plants.

Friday afternoon, the tourage traveled on to Greenville, Tennessee, where they spent the night. The next morning they visited the Pet Milk condensery plant and the Greenville Milk Plant. One of the highlights of the trip was the visit to the University of Tennessee where they met some of the faculty and students in the dairy department there.

Other places visited included the million dollar Foremost Dairies plant, Reigeldale Farms, Happy Valley and Greenfield Jersey Farms and the dairy department at the University of Georgia. The only regrettable incident occurred at the University of Georgia where they saw the University of Georgia baseball team defeat the Clemson nine.

ANIMAL HUSDANDRY CLUB OFFICERS

At a meeting of the Animal Husbandry Club held on May 25 the following officers were elected: President, H. Falls; Vice-President, J. G. Dinkins; Secretary, W. W. Gaston; Treasurer, H. B. Craig; Social Director, G. P. Lachicotte; Publicity Director, N. R. Sites.



FURROWS

NEW ALPHA ZETA OFFICERS

At a meeting held recently of The South Carolina Chapter of Alpha Zeta, which is the local chapter of the national honorary agricultural fraternity, Sam E. McGregor, was elected Chancellor to succeed Duane B. Rosenkrans. W. B. McKay was elected Censor to succeed R. C. DuBose; A. W. Snell is to succeed J. G. Hardee as Secretary; F. L. Fitzsimmons succeeds H. V. Rogers as Treasurer; and E. L. Corley fills the position left vacant by S. L. Hay as Chronicler. These officers were formally installed at a special meeting held on April 29 and assumed duties immediately.

The annual banquet in honor of the graduating members of the local chapter was held on May 20 at the Mayfair Grill in Anderson. The address was made by Mr. J. M. Eleazer, information specialist with the South Carolina Extension Service. This banquet was given in honor of the following graduating members: L. F. Cato, R. C. DuBose, A. S. Gramling, J. G. Hardee, W. H. Kennick, C. H. Key, E. A. Lindenberg, M. W. Loupo, C. M. Lund, L. H. Moore, F. K. Norris, D. P. Rochester, J. S. Rodgers, H. V. Rogers, D. B. Rosenkrans, H. D. Taylor, and H. Z. Woodfin.

The new officers plan to carry out an intensive program of work during next year which will include closer work with the freshmen, and an integrated publicity campaign for the School of Agriculture.

DAIRY CLUB ELECTS OFFICERS

Graham E. Hawkins was elected president of the Dairy Club at a meeting held recently. He succeeds Richardson M. Hanckel who graduates in June. Also elected at this time were E. L. Corley, vice-president and A. T. Gilpin, secretary-treasurer.

At this meeting a social was also planned to be held at Boscobel on May 25.

AG STUDENTS WIN AWARDS

The School of Agriculture was well represented at the Scholastic Recognition Day held on May 5 in the Amphitheater. Four awards were presented to Ag students by Sam E. McGregor, Chancellor of Alpha Zeta.

The Borden Agricultural Scholarship Award, which is presented by the Borden Company Foundation to the senior student having the highest scholastic average who has included two or more dairy courses in his curriculum was awarded to Wayne T. O'Dell, of Easley, S. C., who finished Clemson in February.

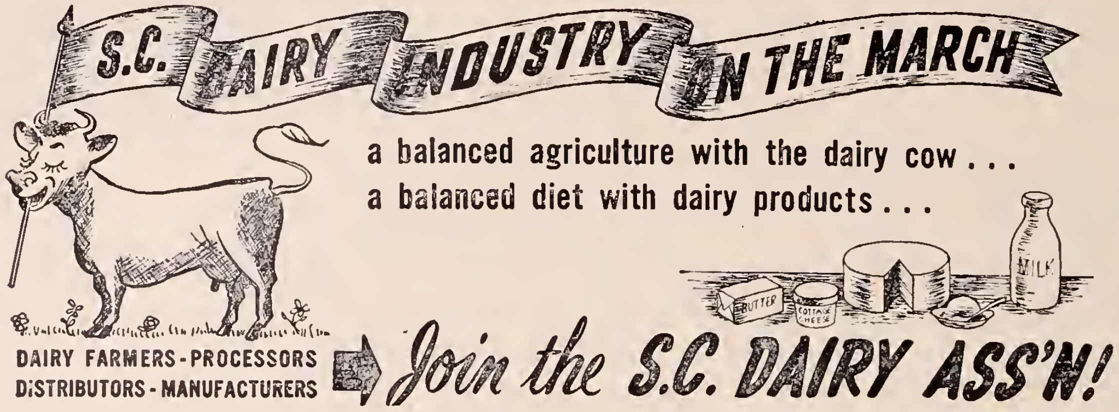
The Sears-Roebuck Sophomore Scholarship Award, which is presented to the outstanding sophomore student who won a freshman Sears Scholarship, was awarded to Philip L. Benfield, a sophomore in Agricultural Engineeering, from York, S. C.

The Alpha Zeta Scholarship Award was presented to Samuel Parker Young, a sophomore majoring in Agricultural Engineering from Dalzell, S. C. This is the first year this award has been presented and it is awarded to the sophomore student in the School of Agriculture who has maintained the highest scholastic average for his first three semesters' work at Clemon.

The Danforth Fellowship Summer Award was presented to Sam E. McGregor, Dairy senior from Lykesland, S. C. This award consists of a two weeks trip to the Purina Experimental Farms and two weeks at the American Youth Foundation Camp at Shelby, Michigan.

REYNOLDS PRESIDENT OF F.F.A.

At the regular meeting of the Future Farmers of America Chapter at Clemson on May 4, Leonard D. Reynolds, Vocational Agricultural Education junior of Lamar, was elected President; L. L. Lewis, Vice-President; P. H. Bedenbaugh, Secretary; J. C. Jackson, Treasurer; C. N. Gulledge, Reporter; and D. L. Johnston, Sentinel.


S.C. DAIRY INDUSTRY ON THE MARCH
a balanced agriculture with the dairy cow . . .
a balanced diet with dairy products . . .
BUTTER
COTTAGE CHEESE
MILK
DAIRY FARMERS - PROCESSORS
DISTRIBUTORS - MANUFACTURERS
Join the S.C. DAIRY ASS'N!

A 16 Point Program for the Dairy Industry in S. C.

1. For Health—make available one quart of South Carolina produced milk for every man, woman and child in South Carolina.
2. Sectional meetings of members for discussion of mutual problems
3. Development of diversified markets for the use of all milk produced in South Carolina.
4. Strict enforcement of health codes and standards.
5. Strict enforcement and/or strengthening of existing laws and regulations for full protection of all cattle against contagious disease.
6. Give full support and cooperation to Clemson College.
7. 100% membership of all producers, manufacturers, and distributors in the South Carolina Dairy Association.
8. Conduct district merchandising and dispensing meetings for soda fountain employees and other milk and ice cream dispensers.
9. South Carolina Dairy Association exhibits at state and county fairs.
10. Scheduled ice cream clinics at Clemson College.
11. Balancing milk production to consumer demand through seasonal production.
12. Promote the establishment of National Dairy Council Units for the promotion of consumption of all types of dairy products.
13. Give more publicity to the importance of the dairy industry in the industrial and agricultural economy of South Carolina.
14. Sponsor attendance of dairy farmers at Clemson Farmers Week.
15. Arrange for a three-day dairy herdsman's short course at Clemson.
16. Request appropriate agency to make a dairy market study in South Carolina as a basis for future expansion.

COBURG DAIRY

CHARLESTON, SOUTH CAROLINA

Agrarian Philosophy

By

The Editor

HERE'S WHY EDITORS GET GRAY EARLY

Ho hum! It's time to begin work on another issue of The AGRARIAN. Let's see - - where shall we start? Well - - - I guess we should first have a staff meeting and decide what we plan to run. At this time we shall make assignments and set a tentative (???) deadline.

Now let's see, what will be some good features for this issue. - - How about something on the Agricultural Fair that was held the week-end of Mother's Day? I think that would be a dandy!! Of course we shall need some pictures to go along with the feature. Where is that photographer? You have some pictures but they're not very good? Well, we can run them anyway and hope for the best just like we do for the rest of the magazine.

Oh yeah, I must check with the advertising manager and see how the ads are coming in, They're coming in pretty slow but you think there will be enough here by time of printing, eh? Well, that's fine, we won't have to worry about that end for this time. That's a load off our mind for this issue.

It's Friday night so while the "rats" are making an attempt to get my room ready for Saturday Inspection I think I'll get started on a couple of editorials. Now what shall I write? Shall it be something serious and constructive or shall I write some nonsense like I'm doing at the present. I believe I'll go half and half. (several hours later) At last I'm through; now to get some sleep so I'll be able to get to the print shop bright and early in the morning to start making it up.

The next two days (including the time I **should** be in class) are spent in the Print Shop finangling with the printer about the makeup. when at last the final form is locked into place "yours truly" breathes a sigh of relief and all his worries are over until the next issue.

IMPROVEMENTS NEEDED ON AG CAMPUS

Each year as the school year draws to a close remarks begin to float around as to several things which should be done to improve the campus or some such similar project. True to form this editor is proposing a few this year. At any rate most of the students including your editor, will be here next year to see these proposals carried out or else fall through.

The first and most striking need is a large bulletin board to be located near the west end of Long Hall. An enclosed board located to the left of the entrance just inside the door. similar to the one in the Textile Building, would be very appropriate. This would eliminate the deplorable array of papers, thumb tacks, and scotch tape, now prevalent on the door and greatly improve the looks of the building in the eyes of visitors.

Another need is closer cooperation between the various departments and a mutual understanding and sharing of ideas. There are various ways this could be accomplished. One project suggested by the first editor of The Agrarian since the war. Bill Reasonover, is a joint bi-monthly meeting of the various departmental clubs and their faculty members. In this meeting, programs beneficial to all, which could not be sponsored individually, would be presented and coordinated plans for projects such as the recently successful Agricultural Fair could be worked out.

There are many other worthwhile projects such as closer work with the freshmen, recognition of outstanding students, and others which are open to clubs or individuals with the initiative and enthusiasm to carry them out. It is hoped that some club or organization will "start the ball rolling" toward the accomplishment of these aims at the beginning of the fall semester

Diesel Engines Versus Carburetors

Improvements In Diesel Engines May Soon Bring Them Into Wider Use As Source of Farm Power

By J. F. CANFIELD
Agricultural Engineering, '49

The compression ignition principle of engine operation was developed six years prior to the development of the carburetor-spark-ignition type of engine. However, only in very recent years has Diesel power assumed any importance in farm power. There were several reasons for this but the main one was the failure of engineers to build a Diesel of small size and comparable horsepower to the gasoline engines which were used in the first farm tractors.

The Diesel engine has a number of advantages over the carburetor type of engine which are counterbalanced to various degrees by disadvantages which I shall endeavor to point out.

The primary and greatest advantage of the Diesel is its higher thermal efficiency which averages about 30 percent greater than carburetor engines. The Diesel is our most efficient means of developing mechanical power at this time. This greater efficiency is due to: a higher ratio, a higher air to fuel ratio, and an unrestricted intake manifold requiring less effort for the intake of air. Other advantages of the Diesel are: its ability to use satisfactorily the lower grades of fuel which cost less, the engine's higher efficiency under light loads, and its lower fuel consumption per brake horsepower hour.

The Diesel engine and the carburetor type engine compare very closely in size and weight for the same horsepower and duty. Therefore, in modern engines a designer is able to offer either type of engine in his decision as to which engine he shall use. In his analysis the designer should consider these points: the cost of the machine when sold to the public, the type of operators and service-fuel available in the area where the machine is to be used and the indimen which will be available for the care of the machine, the types of vidual characteristics of each engine.

The disadvantageous side of the Diesel picture is: considerably higher first cost; a specially trained serviceman is usually required. They are not as flexible as carburetor type engines, they carry heavier internal loads due to higher compression and consequently present a more serious stress design problem in order to give comparable durability to the carburetor type engine. They also present more complex starting, lubricating, and cooling problems.

At the present time only a smill percentage of the farm power used in the United States is derived from Diesel engines. The principle use of Diesels on the farm has been in stationary engines and heavy crawler type tractors. The first tractor designed for farm use and utilizing a Diesel engine was the Caterpillar Model D-2 first offered for sale in 1934. Since this beginning both International-Harvester and Allis-Chalmers have placed Diesel powered farm crawler tractors on the market. International Harvester offered the first Diesel wheel tractor, the D-40, three years later in 1937. This D-40 remained as the only Diesel wheel farm tractor on the market until 1946 when International made its Farmall MD available to the public.

As I have shown, the Diesel is gradually being seen more frequently as a source of power on the farm. This tendency has not yet developed to a sufficient extent that one can say there is a trend toward Diesel on the farm. However, it may be a step in that direction. The reasons farmers have not made a rush to accept Diesel's advantages are: the higher initial cost, higher cost of service and parts, more complicated

(continued on page 16)

With the advanced improvements in Diesel power such small units as this may soon be replaced by Diesels.

ONE MAN
SAVES
HIS CHOICE OF
100 Crops

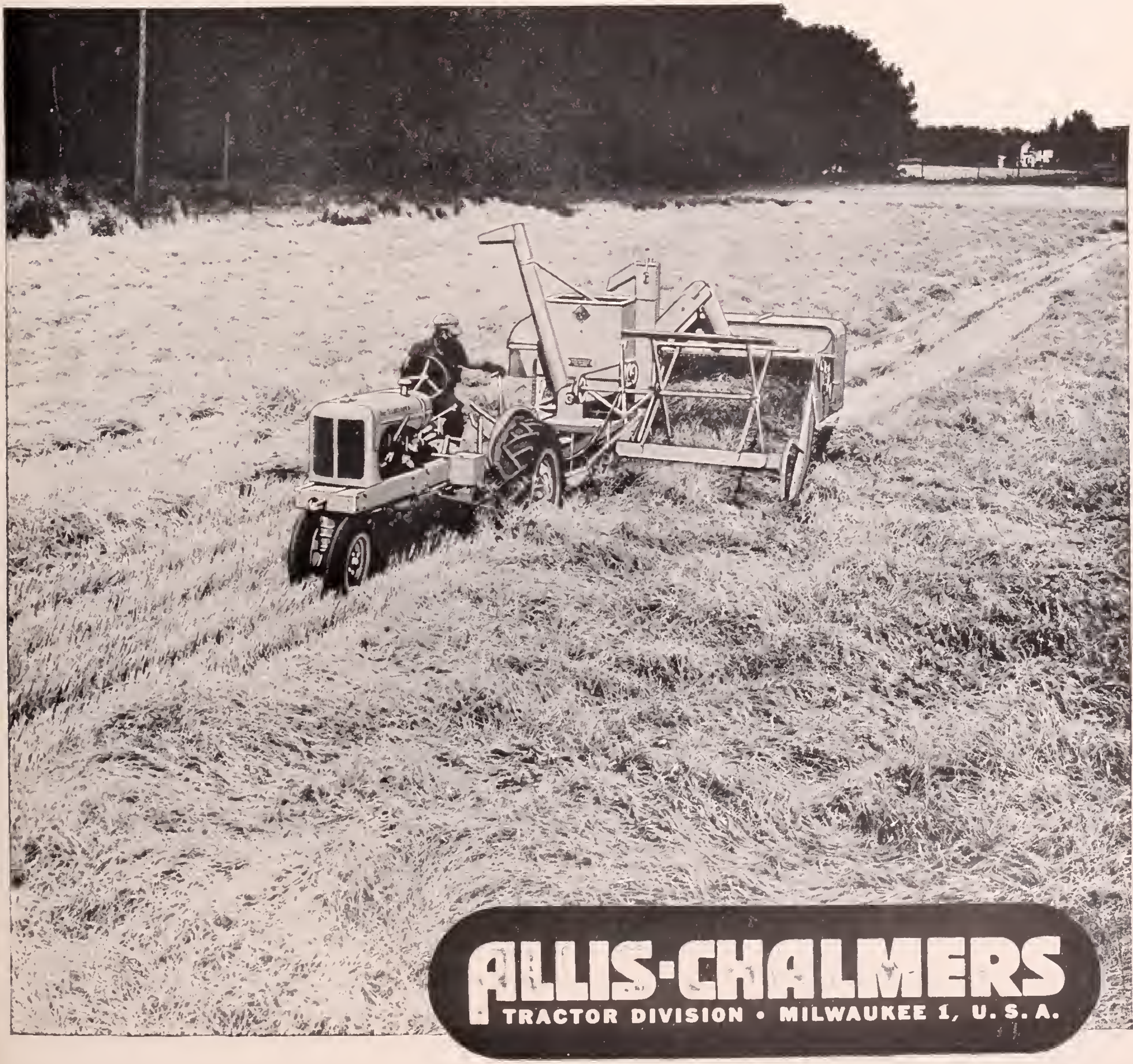
with the ALL-CROP HARVESTER

Cutting an inch from the ground, the All-Crop Harvester demonstrates here how difficult crops can be salvaged.

This entire field of wheat was flat on the ground. The All-Crop Harvester's wide, spiral bar cylinder handled tangled straw up to six feet long.

Through a wide range of hard-to-harvest crops, from viny beans to grain with green undergrowth, the All-Crop saves them all.

Select any diversified rotation you wish, and have your own All-Crop Harvester ready to go as the crops ripen. You will find it priced sensibly. Allis-Chalmers believes that *quality* and *full value* are still the right of every purchaser. That is the only way inflation can be checked.



ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

Fertilizer Inspection in South Carolina

This Public Service Rendered to Farmers Provides Funds for Financing of Our Own Clemson College

By **LEWIS SMITH**
Agronomy 1949

The first public service ever rendered by Clemson College was the inspection and analysis of commercial fertilizers. This service was created for farmers and fertilizer manufacturers throughout the state; it was started by Senator Ben Tillman. This statesman made the statement that if every ton of fertilizer sold in South Carolina was taxed twenty-five cents that he would operate Clemson College on this sum of tax money. For years this was the only support that Clemson College received from the State Government.

It is the duty of the Department of Fertilizer Inspection and Analysis of the Clemson Agricultural College to inspect commercial fertilizers and fertilizer materials for bags, proper bag branding and weights and to secure official samples for analysis to see that the guarantees are met.

In 1942 a bill was passed in Congress requiring the manufacturers to conform their customers mixtures and grades to definite ratios. This system of grading and restricting certain inferior fertilizer from reaching market eliminated some of the filler which was prevalent in fertilizers before 1942.

During the years of 1937-38, 50,000 tons of customers' mixtures in 220 grades were sold in South Carolina. As a result of the bill that was passed in 1942, in the fiscal year of 1946-47 only thirty grades existed in the state. This marked change has been of prime importance to the farmers in South Carolina. With this limited number of grades, the requirements for each particular grade were standardized and therefore enabled the farmers to purchase fertilizers, from any company in the state, because they were sure that each bag of fertilizer met the requirements set up by the Fertilizer Board of Control.

During the fiscal year of 1930-40 the average grade for mixed fertilizers in South Carolina contained: 3.55 percent of Nitrogen, 8.40 percent of Phosphoric acid, and 4.99 percent of Potash; but by 1946 the average had risen to: 3.95 percent of Nitrogen, 9.86 percent Phosphoric Acid, and 6.13 percent of Potash. This improvement of mixed fertilizer had such an influence on agriculture of South Carolina that it has been unparalleled by other factors in the advancement of agriculture in recent years.

The fertilizer industry represents an expenditure ranging between 36,000,000 and 40,000,000 dollars a year. This fact is of primary importance to the farmers throughout the state because this sum of money represents such a high percentage of the farm income, that it would astound individuals who are not in the farming business.

Part of the phosphoric acid laboratory located at Clemson.

DIESEL vs. CARBURETOR

(continued from page 14)

operating problems, and a lack of dissatisfaction with present day carburetor engines.

Today, Diesel's place on the farm appears to be mainly limited to the 30 and 40 horsepower tractors and as stationary engines used in pumping, ginning, sawmills, and similar operations. There is, nevertheless, a growing interest in Diesel power throughout the country.

IT'S MACHINERY *POWER* in farmers' hands that prepares, sows and reaps most food crops today...

it's *protection* of this power that keeps tractors and trucks in best shape to grow and deliver the food needed by America and the world...

and it's Esso quality products that give your farm machinery good *power-protection!*

But today's demands for petroleum products are greater than at any time during the war! Our people are making an all-out effort to meet these needs... and you can help, too—by avoiding all waste of fuels and lubricants *on the farm!*

ESSO STANDARD OIL COMPANY

AGRICULTURAL STUDENTS: You'll find many useful conservation tips and helpful hints on better farming — in the regularly published ESSO FARM NEWS. Ask your local Esso Distributor for a free subscription, or write direct to: Esso Farm News, Room 777 E 15 W. 51st St., New York 19, N. Y.

You can depend on

Esso

FARM PRODUCTS

SNOOPIN' AMONG THE AGGIES

A bouquet of roses to Mr. Bill Moore for the finest Junior-Senior these hyar hills have seen in many a moon. The food was elegant, the speeches above average and the decorations were wonderful. Between Dot Fant and Betty Barton, we don't see how Bill did it.

Would someone please tell a certain Winthrop Miss who the cute little red headed fellow is that teaches dairying. If we remember correctly her exact words were, "That curly red hair really sends me"!

Henry "Azalea" Tecklenburg was really going strong that Friday night. When they finally got him to bed, early Saturday morning, he kept mumbling, "J. Strom got the last one, but this one belongs to ole' Teck."

The gals at the last dance seem at least agreed upon one thing. Why sure "Big Ben" can Shag better than Sonny Hanckel. Some "Hep-Cat" Goodale.

Carl Lowder had the privilege of being at the Sigma Epsilon intermission party last dance. As usual, he made a nuisance of himself by trying to make a little time with every pretty girl that he was introduced to. We think the girls were amused at the way he staggered rather than pleased with being confronted by such a drip.

"Stud" Klettner sat down with a big cigar after the dance and told us how he rose from a simple errand boy under Tommy Covington to the future president of the C.D.A. After talking for an hour or so "The Stud" called his audience to a close by saying, "We've done it this time boys, this Phil Corker and I". Evidently, Klettner was referring to the cool thousand that he and Phil cleared.

We were pleased to notice Miss Vivian Burress at the Junior-Senior. Bill, how did she ever manage to come after that huge weekend at Pawley's with Mr. Riley.

Norris thinks he has Miss Byrd "in the bag" but, it'll take more than a new Plymouth to win her heart. Maybe that fellow from Rock Hill will leave her alone after she goes back to Kingstree. However, popular opinion has it that she plans to teach school in Rock Hill. If it's just too much to bear, Fred, stop by Wayne Ballentine's room and get a little fatherly consolation.

Our date kept talking about how sweet Bruce was to lend her a ribbon to go around her pretty little waist. As the night wore on, it finally dawned that she was talking about Bruce "Hotch" Stribling. You do tie the nicest bow, sir. It must have taken you quite awhile. Was Mrs. Stribling at home?

Could it really be true that Sam "O. G." McGregor busted his ole lady for talking out of turn? Sam goes for this military like Henry Black.

Zeke, so you finally got Betty here? Did you make love to her on the dance floor like at Coker or did you wait 'til after the fling. We wonder if she's going to be able to make that big house party you're planning for this summer.

At last the unbelievable has happened. "Fog" Booth will (he says) never visit Converse College again. Mid-week speeches, at parties and etc., are all finished. He offers this simple explanation — Bob McLeod.

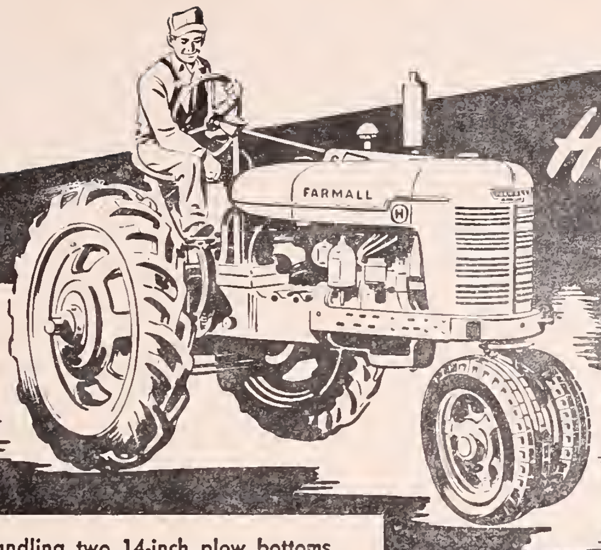
Here it is the last of May and most Clemson students preparing to visit parts of South Carolina not normally associated with Clemson. You will probably see them at Ocean Drive, Myrtle Beach, Pawley's Island, and other resorts so dear to our hearts. Romances, heartaches, house parties, new faces, and fine places will make this a happy summer for all. To those who won't be back in September we want to say we sho will miss you. To the Lucky ones who plan to return to the hay and pasture region in September — have a big summer and please get back safely — unmarried. . . . . .

Lesson in a Mirror

Future producers of pork, beef and lamb, accustomed to seeing animals on foot, should be equally familiar with the carcass. For the carcass reflects the breeding, feeding, care and handling of livestock. Its quality determines the cuts, texture and flavor of the meat that is sold to the consumers. Knowledge of the carcass is the key to successful livestock production...success in any business hinges on the ability to give the public what it wants.

ARMOUR and Company

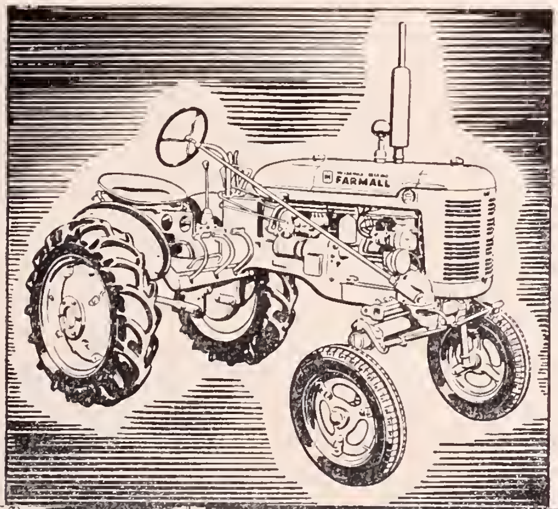
Here's what the *FARMALL SYSTEM *means to* YOU!



For handling two 14-inch plow bottoms and comparable work, FARMALL H (above) is *the* choice.

The Farmall System of Farming is an American institution. Its roots are in the soil . . . on *your* farm, on the farms of your neighbors.

To increase productivity and speed field work, look to the Farmall System for the answer. A Farmall Tractor and matched machines can mean greater operating economy and efficiency on the family farm — *and that brings better living!*

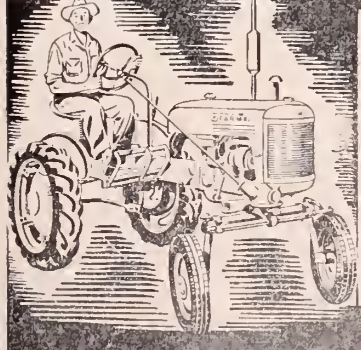


Five basic models make up the Farmall lineup. There's a size for every farm, an endless selection of Farmall equipment to work in every crop and soil condition.

The answer to the power problem on *your* farm can be found in the Farmall System. Your nearest International Harvester dealer can give you full details on the model that fits your farm.

INTERNATIONAL HARVESTER COMPANY
180 North Michigan Avenue Chicago 1, Illinois

Left: Farmall Super-A offers hydraulic Farmall TOUCH-CONTROL and new "combustion control."



***FARMALL is a registered trade-mark. Remember— Only International Harvester builds Farmall Tractors.**

Smallest member of the Farmall Family is the Farmall Cub with matched Cub equipment.

FARMALL Leads the Way!

WHERE ARE LAST YEAR'S GRADUATES?

AGRICULTURAL ECONOMICS

Roy L. Allen is employed by the Rock Hill Printing and Finishing Company as an industrial economist. He recently accepted a commission in the Army Air Force and is to report to Texas in the near future.

Henry Barnwell, is working with his father in the insurance and real estate business in Florence. He is married and has one child.

William Irving, is working with the Veterans Administration in the "on-the-farm-training" program in the state of New York.

Dan A. Kennerly, is the District Manager of a life insurance company. He is living in Cordova, and is also doing some work with the Veterans Administration.

Edwin Nunnery, is Postmaster in Great Falls. He has also gotten married since graduation.

AGRICULTURAL ENGINEERING

A. B. Carwile is employed in the Industrial Engineering Department of the Abbeville Mill in Abbeville, S. C.

L. G. McGill is employed by the South Carolina Ginning Association.

J. M. Goodman holds a position with the South Carolina Power Company in Charleston, S. C.

J. S. Evans remained at Clemson as an Assistant Agricultural Engineer working on cotton mechanization research.

L. A. McInnis is also at Clemson as an Assistant Agricultural Engineer. He is currently engaged in work on irrigation research.

H. G. Rhodes went to Ashwood Schools, Bishopville, S. C., as a farm shop instructor.

D. E. Hay works in the Farm Structures Department of the Tennessee Coal, Iron, and Railroad Company at Birmingham, Alabama.

H. C. Edens is farming in Dalzell, S. C.

AGRONOMY

Dan Horton worked with the experiment station at Blackwell for a short time after graduation. He is doing graduate work at North Carolina State College at the present.

Bill Camp returned to California after graduation and has entered the farming business with his father.

Henry L. Parr is managing a dairy farm near Newberry.

Andrew White and A. D. Burnett are working with the Fertilizer Division of Swift and Company.

Harry Blanton accepted a position with the Virginia-Carolina Fertilizer Company.

ANIMAL HUSBANDRY

E. W. Allen is back in the army and is stationed at Randolph Field, Texas.

H. W. Boozer is working for the White Provision Company in Atlanta.

D. M. Camp is at his ranch in Bakersfield, California.

P. E. Freeman is farming at Steeds, North Carolina.

J. E. Hill will finish his Master's Degree at the University of Illinois this June.

L. C. Howell will finish his M.S. Degree at Oklahoma A & M this June.

DAIRYING

J. W. Lyles is Assistant Dairy Specialist with the South Carolina Extension Service and works out of Clemson, S. C.

B. J. Stanek is employed as Fieldman for Edito Farms Dairy in Columbia, S. C.

T. S. Bowers is an Assistant in Dairying, located at Clemson, S. C.

M. B. Edens is in charge of the Sealtest Laboratory at the Southern Dairies plant in Miami, Fla.

J. W. Dantzler is enrolled in the School of Veterinary Medicine at Alabama Polytechnic Institute, Auburn, Ala.

A. E. Bobrow is laboratory technician for Sheffield Farms Company, Inc., in New York City.

J. C. Hiers is technician with the Anderson County Breeding Association at Anderson, S. C.

H. E. Branyon is at home in Honea Path, S. C.

W. F. Irwin is a dairy farmer at Laurens, S. C.

HORTICULTURE

J. S. Alexander is teaching at Tennessee Junior College at Martin, Tennessee.

A. J. Dibble is working on his graduate degree in Floriculture at Ohio State University.

J. E. Herlong is in the peach orchard business for himself at his home in Saluda, S. C.

W. L. Johnson is engaged in the food preservation and pickling business at Barnwell, S. C.

W. C. Kennerty is teaching school and farming at Charleston, S. C.

W. L. Marlow is a peach orchardist at Inman, S. C.

O'Neal Miller has accepted a job as florist at Sumter, S. C.

SELL or TRADE

YOUR WHEAT

WITH

Allen Brothers Milling Co.

Columbia Greenwood

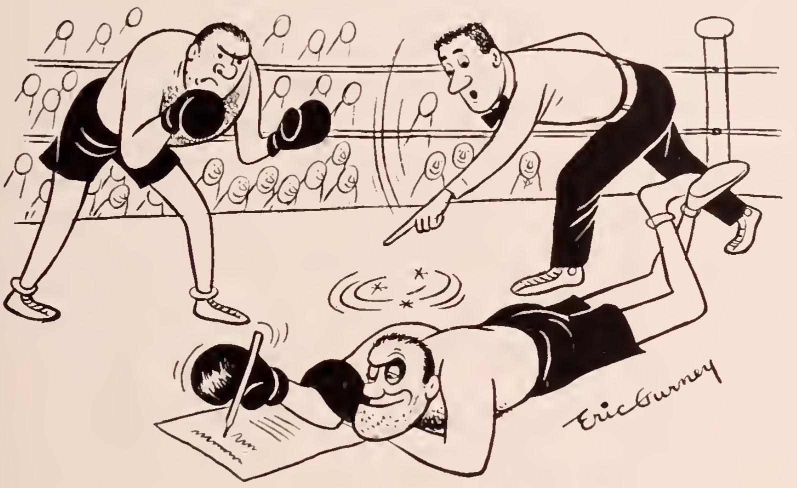
EASY MONEY DEPARTMENT

If your letters home read like this: "Dear Folk$, Gue$$ what I need mo$t?" then perhaps we can ease the parental burden. Pepsi-Cola Co. will cheerfully send you a dollar... or even fifteen for gags you send in and we print.

Merely mark your attempts with your name, address, school and class and mail to Easy Money Dept., Pepsi-Cola Co., Box A, Long Island City, N. Y.

All contributions become the property of Pepsi-Cola Co. We pay only for those we print. As you might imagine, we'll be quite mad if you mention Pepsi-Cola in your gags. (Simply mad about it.) Remember, though, you don't have to enclose a feather to tickle our risibilities. Just make us laugh—if you can. We'll send you a rejection slip . . . if you can't.

GET FUNNY...WIN MONEY...WRITE A TITLE



"... *well, as long as I'm down here I'll fill out my entry blank for the Pepsi-Cola 'Treasure Top' Contests.*"

Got a good line for this gag? Send it in! $5 each for any we buy (Don't worry about the caption that's already there—that's just our subtle way of reminding you about Pepsi's terrific $203,725 "Treasure Top" Contests. Latch onto entry blanks at your Pepsi-Cola dealer's today!) Or send in your own cartoon idea. $10 for just the idea—$15 if you draw it . . . if we buy it.

January winners: $15.00 to *Philip Gips of the Bronx, N. Y.*, and to *Rosemary Miller of Mary Washington College.* $5 each to *Jerry H. O'Neil of Washington University, Jack Marks of Columbus, Ohio,* and *C. A. Schneyer of New York City.*

HE-SHE GAGS

You, too, can write jokes about people. These guys did and we sent them three bucks each for their wit. To wit: *Joe Murray of Univ. of Iowa. Bob Prado of the Univ. of Texas, King MacLellan of Rutgers Univ.*, and *Ray Lauer of Cicero, Illinois.*

She: Thanks for the kiss.
He: The pressure was all mine.

* * *

He: Yoo-hoo!
She: Shut up, you wolf!
He: Pepsi-Cola?
She: Yoo-hoo!!

* * *

She: What's the best type of investment?
He: Air mail stamps.
She: Why air mail stamps?
He: They're bound to go up.

* * *

She: If you kiss me, I'll call a member of my family.
He: (Kisses her).
She: (sighing) Brother!

* * *

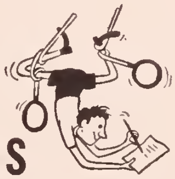
Can you do better? We hope so. And we're ready to pay for it. $3 is waiting. Try and get it!

EXTRA ADDED ATTRACTION

At the end of the year, we're going to review all the stuff we've bought, and the item we think was best of all is going to get an extra

$100.00

DAFFY DEFINITIONS



$1 apiece is shamefully sent to *C. R. Meissner, Jr. of Lehigh Univ., Bernard H. Hymel of Stanford Univ., T. M. Guy of Davidson College,* and *Irving B. Spielman of C. C. N. Y.* In fact we're almost sorry we did it.

Atlas—a geography book with muscle.

Spot—what Pepsi-Cola hits the.

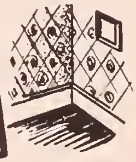
Paradox—two ducks.

Laugh—a smile that burst.

* * *

Hurry and coin a phrase . . . you might face some coin. If that isn't easy money, we don't know what is.

LITTLE MORON CORNER



"Yuk, yuk, yuk!" we said when we read this. And promptly peeled off two crisp leaves of cabbage ($2) for *June Armstrong, of the University of Illinois:*

"How do you like my new dress?" asked the little moron's girl friend on the night of the Junior prom. "See, it has that new look—with *six* flounces on the skirt."

"Duuuuh," replied our little hero, "that ain't so great. Pepsi-Cola's got *twelve* flounces!"

Do you know any little morons? If so, follow them, send us their funny utterances and we'll send you $2, too. Nothing personal, of course.

TED WILLIAMS
BOSTON RED SOX

STAN MUSIAL
ST. LOUIS CARDINALS

BOSTON BRAVE'S
BOB ELLIOTT
VOTED MOST VALUABLE PLAYER
IN THE NATIONAL LEAGUE

CHAMPION N. Y. YANKEE'S
JOE DiMAGGIO
VOTED MOST VALUABLE PLAYER
IN THE AMERICAN LEAGUE

THE BASEBALL MAN'S CIGARETTE

When you change to Chesterfield
THE FIRST THING YOU WILL NOTICE IS THEIR MILDNESS
that's because of their Right Combination World's Best Tobaccos —

ALWAYS MILDER
BETTER TASTING
COOLER SMOKING

BUCKY HARRIS
MANAGER OF
WORLD'S CHAMPION
NEW YORK YANKEES

EWELL BLACKWELL
CINCINNATI REDS

ALWAYS BUY CHESTERFIELD

They Satisfy

Copyright 1948, Liggett & Myers Tobacco Co.

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The Agrarian

OFFICIAL STUDENT PUBLICATION

NOVEMBER 1948

CLEMSON, S. C

LION ON THE LOOSE!

Zoo Curator Clyde Gordon finds EXPERIENCE IS THE BEST TEACHER —in handling "big cats" ...and in choosing a cigarette, too!

WHILE MOVING TWO LIONS INTO A NEW CAGE AT THE ZOO...
FAWSANA'S ON HER WAY — BUT IT LOOKS LIKE TROUBLE WITH SULTANA!
BE CAREFUL! I'VE LEARNED FROM EXPERIENCE—LIONS RAISED IN CAPTIVITY CAN BE MORE DANGEROUS THAN JUNGLE BORN!
WITH A SUDDEN ROAR...
SUCTANA LEAPS THROUGH THE CAGE DOOR—CRASHES THROUGH THE RUNWAY FENCE!
RUN, CHIEF!
NO—THAT'S THE WORST THING I COULD DO!
STEADY, GIRL, STEADY... NOW BACK INTO THE RUNWAY... AND TRY YOUR NEW CAGE!
LOOKS LIKE SHE'S GOING TO OBEY!
THAT WAS CLOSE, CHIEF, BUT YOU SURE HANDLED THINGS RIGHT!...HAVE A CAMEL!
THANKS... EXPERIENCE COMES IN HANDY—WHETHER YOU'RE HANDLING ANIMALS OR CHOOSING A CIGARETTE! THAT'S WHY I SMOKE CAMELS!
CAMEL
TURKISH & DOMESTIC BLEND CIGARETTES
CHOICE QUALITY

*EXPERIENCE IS THE BEST TEACHER**

LONG EXPERIENCE HAS TAUGHT CLYDE GORDON NEVER TO SHOW FEAR TO AN ANIMAL. HE STANDS HIS GROUND... SPEAKING SOFTLY, INSISTENTLY... WHILE DIVERTING HER ATTENTION WITH BROOM HANDLE.

*TRUE, TOO, IN CHOOSING A CIGARETTE! WITH SMOKER AFTER SMOKER WHO TRIED AND COMPARED—CAMELS ARE THE "CHOICE OF EXPERIENCE"!

R. J. Reynolds Tobacco Co., Winston-Salem, N. C.

Let your "T-Zone" tell you why!

T for Taste...
T for Throat

...that's your proving ground for any cigarette. See if Camels don't suit your "T-Zone" to a "T."

Zoo Curator Clyde Gordon says:

I'VE LEARNED FROM EXPERIENCE THAT MILD, FULL-FLAVORED CAMELS SUIT ME TO A 'T'!

Clyde Gordon

General Curator and Director
Staten Island Zoo

According to a Nationwide survey:

MORE DOCTORS SMOKE CAMELS THAN ANY OTHER CIGARETTE

When 113,597 doctors were asked by three independent research organizations to name the cigarette they smoked, more doctors named Camel than any other brand!

CAMELS—the Choice of Experience!

The Agrarian

OFFICIAL STUDENT PUBLICATION

VOLUME 8 THE CLEMSON AGRICULTURAL COLLEGE NUMBER 1

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COVER—A pretty South Carolina lass, the former Miss Ann Laney of Cheraw gathers apples from a tree which was pollenated with pollen transported from California.

VC
FERTILIZERS

★

Virginia-Carolina Chemical Corporation manufactures V-C Fertilizers balanced to meet the particular plant food needs of every crop you grow. When you buy V-C Fertilizers, what you really get is the more abundant harvest that makes farming a better paying business.

★

Virginia-Carolina
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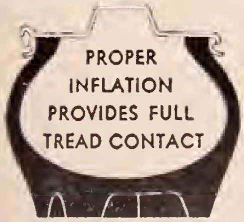

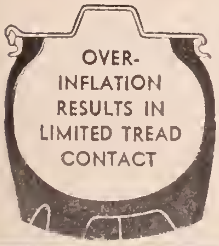

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Irrigation Opens New Methods Of Farming for South Carolina

Mother Nature, commissioned by the Master Planner as custodian of supplies for all basic agrarian enterprises, often distributes supplies to her wards lavishly but in such a way as to bring about later hardships. A prime example of this paradox is often found in a normally humid climate such as we enjoy in South Carolina. Planting season may find the farmer faced with too much rainfall and shortly thereafter during the critical growing season find him anxiously searching the skies for the slightest indication of a much needed shower.

Through experimentation and observation man has found that with certain crops it is often highly advantageous to supplement this unequal moisture distribution by irrigation. This practice has been followed in some sections of the nation for many years, but often under highly specialized conditions and resources. However, with the development of new engineering and cultural methods supplemental irrigation is constantly becoming more practical for general farming.

South Carolina farmers have not turned to supplemental irrigation to the extent that have those in many other states with comparable moisture problems, even though it has proven profitable for many crops grown commercially in South Carolina, particularly horticultural crops. Peaches, strawberries, beans, cabbage, cucumbers, watermelons, cantaloupes, tomatoes and lettuce are among the more responsive crops. The irrigation of pastures, and tobacco plant beds has also proven profitable. Irrigation systems adapted to the above cash crops can often be extended advantageously to other less responsive crops such as apples, pecans, alfalfa and corn.

This huge nozzle will cover 2½ to 3 acres with water at one setting.

By LEE DE YOUNG
Horticulture '50

Cooperative experiments on irrigation within the state are being conducted by the Agricultural Engineering and Horticulture Departments of the South Carolina Experiment Station and the Soil Conservation Service. H. Z. Duffie, Extension Assistant Agricultural Engineer at Clemson, is also gathering much useful information on irrigation problems related to conditions within the state.

There were 34 irrigation systems in use on about 2,000 acres in South Carolina in 1947. A growing interest in this type of farm insurance has increased this to a current 3,000 acres irrigated by 44 systems. Peaches, truck crops and pastures account for most of this acreage, with small amounts in corn and alfalfa.

Several articles on practical farm irrigation have appeared in agricultural publications recently, outstanding among these being an article on peach irrigation in South Carolina by A. M. Musser, Professor of Horticulture at Clemson, in the August issue of American Fruit Grower. J. M. Eleazer, Clemson Information Specialist, has an interesting article in the November issue of The Progressive Farmer concerning his recent coast-to-coast tour to study irrigation.

An available water supply that is both plentiful and cheap is of first importance in planning an irrigation system. South Carolina, blessed with numerous lakes and streams, should normally experience no difficulty meeting this demand. Countless natural springs feeding into watersheds ideal for reservoirs also help simplfy this problem.

The crops to be irrigated, type of soil, equipment best suited to the particular operation, and frequency and method of application are among the many other factors that must also be taken into consideration when planning an irrigation system. County agents and extension workers can be of assistance in

(continued on page six)

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Irrigation

(continued from page five)

solving these problems.

Methods of application generally used in South Carolina are furrow and sprinkler. The use of portable aluminum pipes, a third as heavy as lightweight steel pipes formerly used, has given a stimulus to the use of sprinklers. This method received another boost from a recently introduced nozzle that will sprinkle 2½ to 3 acres at one setting. Designed to give even distribution in high crops and over large acreages, this giant among sprinklers should cut labor costs and possibly bring a wider range of crops into the protective custody of irrigation.

The old homestead may be "all wet" a little more often than usual, but many South Carolina farmers will find they have more "dry powder" to go gunning for such things as mortgages, that new tractor and Mom's deep freezer when they accept the proverbial "Adam's Ale" in their lakes and streams as a miraculous farm tonic for dryweatheritis.

Farm Machinery Featured During Farmer's Week

A part of the large crowd who attended the annual "Farmer's Week"

By S. T. RUSSELL
Agricultural Engineering '49

Farmers from over the entire state, and other states as well, were welcomed to the campus of Clemson College during the week of August 22, 1948. This well known "farmers' Week" is considered as an annual event at Clemson but because of production and other difficulties this was its first appearance since the beginning of World War II.

The Agricultural Engineering Department held the undivided attention of the "mechanization minded" farmers. There were more than twelve tractor or implement companies represented on the campus. Bowman Field (Clemson's main drill field) served as the parking area for the large number of farm tractors and other farm equipment.

The machinery display was only one of the unforgettable sights sponsored by the Agricultural Engineering Department. Farm pond construction, irrigation, dynamite ditching, land preparation, and many other interesting demonstrations were given on the Agricultural Engineering fields.

This picture shows the large "volume gun" in action.

The irrigation picture is that of a Rainbow "volume gun" operating at a pressure of 85 pounds at the gun. This rotating gun distributed the white, misty, shower of water over 3.49 acres of pasture. The volume of water flowing from the gun and the acreage which it will cover can be governed by inserting different size rings in the nozzle.

The pump used to supply the water to this giant sprinkler was a giant itself. A four inch, centrifugal, Hale, irrigation pump was used. The maximum discharge of this pump, with a ten foot suction lift is 800 gallons per minute (489 gallons per minute equals one inch on one acre per hour) at 100 pounds pressure.

The approximate cost of this pump (mounted on a trailer), volume gun, and 1000 feet of 6 inch aluminum pipe is $3400.

Immediately after lunch each day during Farmers' Week a steady whine of the tractors began as they moved to the demonstration fields. Soon after the tractors arrived at the field, a parade of automobiles filled with farmers filed into the parking areas provided for them.

Each tractor or implement company was given a portion of the field on which to demonstrate the working of their equipment. These qualities were not only demonstrated but they were also explained to the farmer, if he so desired. It was here in this plot of land that many farmers recognized the working value of mechanized farm equipment.

The demonstration began about 2 o'clock in the afternoon and ended when the last farmer left the field. The farmer usually left the field about 5 o'clock.

The thunderous noise of dynamite could be heard over the entire farm. This noise was coming from the ditching demonstrations. As the farmer approached the demonstration he looked for ditch banks immediately, but there were not any. This factor is one of the main advantages of dynamite ditching. This type of ditching is also faster, cheaper, more simple, and there is no overhead cost of equipment. The farmers entered the field thinking only of the detrimental effect of dynamite, but they left thinking of its constructive power.

The "snack wagon", sponsored by the student branch of the American Society of Agricultural Engineers, was a welcomed feature on the hot, dusty demonstration fields. The wagon rolled from one field to the other furnishing the visitor with snacks to eat and cold drinks. This organization of students wishes to express its thanks and appreciation to the visitors for the wonderful support given the society and to Professor G. B. Nutt, Head of Agricultural Engineering Department, for making the operation of this wagon possible.

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CROSSBREEDING OF CATTLE ON THE MARCH

Clemson Cooperates with Federal Government In Promoting Crossbreeding of Dairy Cattle

By G. E. HAWKINS
Dairy '49

Ever since man first recognized hybrid vigor, he has endeavored to harness its benefits to meet his own requirements. Possibly his first dealings with this genetical sport were with the mule. As the science of genetics was more clearly understood men were able to use its secret to develop hybrid plants that exhibited extreme vigor in the first generation. Unfortunately, with the exception of chickens, animal breeders have not been able to reproduce the quick successes obtained by the plant breeder because of the longer cycles of generations and because most animals have fewer offspring in a given period of time.

In spite of these difficulties, men of vision have attempted the development of the crossbred cow on a practical basis. Soon after the turn of the century, work was begun at the Maine Experiment Station. In 1911 the Massachusetts Experiment Station began intensive interbreeding of Guernsey and Holstein-Freisians, Jerseys, and Aberdeen-Angus. The results obtained in these trials were inconclusive because they were not carried out under controlled conditions nor were the production levels established.

Within the past decade the Bureau of Dairy Industry, United States Department of Agriculture, has started extensive experimentation to determine whether hybrid vigor in dairy cattle can be developed on a practical commercial basis. At their Beltsville, Maryland Station they have assembled a group of Holstein-Freisian, Guernsey and Jersey females from their outlying substations to be used with Red Danes from their own herd. The proved sires from their experimental herd are used to make the desired crosses.

The program as set up, calls for a continuous introduction of new genes. A typical cross under this system would be a Holstein-Freisian bull bred to a Guersey cow. The female offspring of this union is bred to a Red Dane sire, to be followed in the next generation by a Jersey bull. As far as sex ratios allow, reciprocal crosses were made. This means that for every mating of a Jersey bull to a Holstein-Freisian female, a Holstein-Freisian bull would be bred to a Jersey cow. This was impossible with the Guernseys since no Guernsey sires were included in the project.

All the crossbred heifers were barn fed during their entire lactation. They were turned out into a dry lot only during pretty weather for exercise. All the crosses are milked three times daily for 365 days and bred for their next calf after four and a half months. This means that each animal carried a calf for approximately 230 days during her lactation. All females were weighed and measured periodically to give an indication of the growth rates of the hybrids.

These records to date, have shown a 20 percent increase above the calculated expected increase over the dams, in both milk and butterfat. Crossbred animals have indicated persistency and longevity. Some individuals produced within ten lbs. as much fat during their last month of lactation as they did during their first month.

These records look encouraging, however it must be remembered that it will require time to obtain all the facts and to establish the practical application of crossbreeding.

Clemson College is one of the leaders in controlled crossbreeding, with their herd begun in 1936 by Prof. J. P. LaMaster, head of the Dairy Department. He started the herd to provide laboratory material for his genetics classes, using cattle rather than the usual Drosophila to study the inherited characteristics. It was only last year that the Clemson crossbreds became a part of the Regional Dairy Breeding Project in cooperation with the Bureau of Dairy Industry, and several other Southern Experiment Stations. The data accumulated over the past ten years on these cattle are now being analyzed for a preliminary report to be published next spring.

Among Our Alumni

1916

Andrew C. Dibble is now landscape architect and superintendent of city parks at Orangeburg, S. C.

1918

Benjamin G. Sitton is associate pomologist at the U. S. Pecan Field Station, Shreveport, La.

1922

Julius C. Townsend is agricultural statistician with the U.S.D.A. at Orlando, Florida.

1923

Dr. Melvin B. Hoffman is Professor of Pomology at Cornell University.

1929

Joseph F. Hawkins is in the fertilizer business at Timmonsville, S. C.

1933

John C. Patrick is a past president of the Tennessee Horticulture Society and a fruit grower at Fayetteville, Tenn.

1935

Walter W. Dillard is a peach grower at Greer, S. C., and also a representative for an insecticide company.

1937

Dr. Fred H. Lewis is pathologist at the Arndtsville Fruit Sub-Experiment Station at Arndtsville, Pa.

1939

Roy M. Dobson is a peach grower and farmer at Greer, S. C.

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MORE SHEEP FOR SOUTH CAROLINA AGRICULTURE

By J. L. CRAPSE
Animal Husbandry '49

"Let her glad valleys smile with
wavy corn;
Let fleecy flocks her rising hills
adorn."

One of the earliest tasks known to man was the chore of herding sheep. Long before he bothered with the matter of recording any history, primitive man had tamed his sheep, and the delights of mutton stew and "woolens" in winter were matters of common knowledge and practice for him. All domestic animals have served man well; however, with his wool, his mutton, and the soft leather from his tanned hide, probably no other animal has aided man more in his rise from savagery to civilization than the sheep. The author of "The Indispensible Sheep" aptly phrased the place of sheep in mankind's existence when he employed the phrase: "They also serve who only stand and wait."

The sheep industry reached its peak in the United States in 1884 with a total number of 50,627,000 of the "fleecy" individuals. For South Carolina the peak in its sheep industry seems to have been reached in 1850. Since such time the decline in sheep population in this state has been very rapid and consistent. Comparing South Carolina with certain other southern states, in which environmental conditions and natural resources would approximate more nearly those of this state or lean toward the more unfavorable side for sheep raising, the decline in sheep population here outstrips the decline in such states and is proportionately larger. Using the sheep population figures for the year 1946, a computation of the number of sheep per square mile reveals .16 for South Carolina as contrasted with 5.6 for Louisiana; the states of Mississippi, North Carolina, Alabama, Florida and Georgia ranked above South Carolina. Although sheep are considered more generally adapted to the hilly sections, on April 1, 1940, certain counties in the Coastal Plains, i. e., Charleston, Williamsburg, and Orangeburg, placed ahead of counties from the Piedmont in numbers of sheep. Considering the sheep population in a state like Louisiana, there does not appear to be any acceptable or tenable reason for South Carolina ranking in last place in the sheep industry of the Southland.

In raising sheep, it is conceded generally that the medium-sized farmer will usually be more successful than the operator of a large farm because he will have more time to devote to them. The lastest farm surveys indicate the acreage of an average South Carolina farm as approximating 75 acres. This size farm does not lend itself to beef cattle production, and, with low grain yields, it would not be conducive to the production of pork, which in many instances would scarcely do more than supply the needs of the average farm family. It is not suggested that sheep supplant hogs or cattle in South Carolina, but from this particular standpoint it seems feasible to aver that sheep could fill a unique position in South Carolina's general farming activities and livestock production; they could enhance the desirable features of a diversified agriculture and add a boost in farm income at a time, late spring or early summer, when it is much needed.

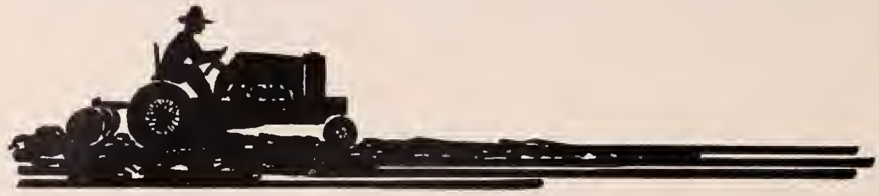
More sheep would be desirable in South Carolina agriculture because of the improvement in soil fertility they afford; sheep manure ranks higher than the manures from other farm animals in percentage composition, in pounds of nitrogen, phosphorous (excepting poultry in this instance) and potash per ton, and in value per ton. Increases in the sheep population here would be feasible because the stomach worm and the nodular worm, stomach and intestinal parasites of sheep and the greatest drawback to a successful sheep venture, can be effectively controlled by the administration of phenothiazine. Recent tests in administering this drug to sheep at Clemson indicates that it is effective in "removal of stomach worms, nodular worms, and hook worms."

Good permanent pastures and excellent winter grazing are added advantages to beckon expansion of the sheep industry in South Carolina. While on the subject of feed and pastures, mention might be made of work at the Georgia Experiment Station wherein it was found that for fattening lambs sweet potatoes, when compared with corn, were the most efficient per unit of digestible nutrients consumed. This is especially significant when one pauses to recall that South Carolina's 1947 corn yield was approximately 17 bushels per acre: its 1946 sweet potato yield was 105 bushels per acre.

Another surprising fact in favor of more sheep in this State is that Southern wools, the majority of which is grown by native sheep, exhibit very low shrinkage. Work at certain Southern Agricultural Experiment Stations indicates the most complete and economical utilization of pastures is derived from the dual grazing of cattle and sheep on the same pastures.

The matter of nutrition comes in for a word; the dislike of mutton and lamb by people in general in South Carolina is largely a matter of prejudice. They are nutritious meats; when compared with pork, beef, and fowl, on the basis of energy, calcium, protein, phosphorous, and iron, mutton always ranks in second or third place; it does not display wide fluctuations in food values as do its popular competitors in the meat line. On such basis, mutton and lamb are very stable in food values, and "tastily prepared, lamb is one of the most delicate, healthful and palatable of all foods." Lamb, being the most easily digested of our commercial meats, finds wide use in the diet of convalescents. More lamb, not only for keeping healthy but for restoring the sick person to health, is a desirable theme for nutrition, and the realization of same could be best served by more sheep in South Carolina agriculture.

When more sheep dot the hillsides of South Carolina and tread the verdure of her pleasant valleys a new note will have been sounded in agricultural contentment and well-being in the Palmetto State.



BETWEEN THE

Current Sears Roebuck Scholarship Awards

Twenty Sears Roebuck Foundation Scholarships, each worth $100.00, have been awarded to first semester freshmen on the basis of achievement in a competitive examination held October 18. The awards yield the recipients Fifty Dollars for their first semester and a like sum their second semester; in the event a holder drops out of school the remaining balance is awarded to the competing participant in the examination who stands next in line. Dean H. P. Cooper discloses that the successful participants are: Robert M. Prince, Jr., Lynchburg; David Mangum, Spartanburg; Robert Y. Park, Winnsboro; Louis M. Stephens, Canton, N. C.; Henry R. Hogg, Jr., Hillside, N. J.; Thomas C. McMeekin, Greenside, Pa.; Jean A. Roux, Spartanburg; Geo. C. Mackey, Jr., Orangeburg; Hugh O. Vaingneur, Ridgeland; John F. McLeod, Jr., Chesterfield; Chas. L. Mason, Jr., Madison, Ga.; Edward M. Grainger, Nichols; Ross M. Sanders, St. Helena Island; Robert B. Johnston, Sumter; Frank J. Holcombe, III, Summit, N. J.; David K. Frinke, Baldwin, N. Y.; Wayne D. Dabney, Lancaster; Wayne T. Williamson, Naval Base; Harry W. Lewis, Jr., Yonkers, N. Y.; and John E. Lunn, Timmonsville.

Of the group receiving scholarship awards during the 1947-48 session, Winston H. Sibley, Agriculture major from Greenville, was named to receive the award offered to the sophomore who attained the highest scholastic rating in his freshman year. Sibley made a grade point ratio of 8.58 on his freshman work. This Sears Roebuck award is valued at $200.00.

A. T. A. To Be Represented At National Meet

Frank Hart has been chosen to represent Clemson's chapter of Alpha Tau Alpha at the National convention of American Vocational Association to be held at Milwaukee, Wisconsin. Frank, along with Dr. White and Mr. Monroe, will attend this conclave from November 29 to December 4th.

Clemson Meanders Out To Texas

Clemson didn't really stroll out to Texas, but the college was ably represented at a Farm Mechanization meeting in Lubbock, Texas, from October 14-16, by Dr. H. P. Cooper, Dean of the School of Agriculture and Director of the South Carolina Experiment Station; G. B. Nutt, Head of the Agricultural Engineering Department; M. R. Powers, Associate Agricultural Engineer of Edisto Experiment Station; W. B. Rogers, Superintendent of the Experiment Station; M. C. McKenzie, Sam Williams, W. H. Bawk and Mr. Evans of the South Carolina Extension Service.

At this meeting Mr. Nutt presented an enlightening talk on "Progress and Problems in Mechanization of Cotton and Related Crops in The Southeast".

The National Cotton Council, Memphis, Tennessee, in cooperation with the Farm Equipment Institute, manufacturers of farm machinery, the Land Grant Colleges, and the U. S. Department of Agriculture, is sponsoring these meetings which are held annually.

While in Texas, on October 15th, Dean Cooper, together with Dr. Russell Coleman, State College, Mississippi, and Dr. R. D. Lewis, of College Station in Texas, was featured in a radio forum discussion on Cotton Mechanization in the Southeast over Station KSEL.

Borden Agricultural Scholarship Awarded

William McKay, Dairy Major, of Hendersonville, North Carolina, has been named winner of the Borden Agriculture Scholarship, valued at $300.00, for 1948.

Eligibility for this award is predicated upon the inclusion of two dairy courses in the curriculum of any agricultural student by the end of his junior year in addition to the highest scholastic rating at this time. McKay, having 36 other competitors who where eligible, attained the highest grade point ratio — 8.01.

FURROWS

With Animal Husbandry Professors On Leave

Professor R. R. Ritchie, formerly with the Animal Husbandry Department of the college, is now on leave for a period of two years and is sojourning in Japan, being associated with efforts of the U. S. Army in rehabilitating Japanese agriculture. Word from Mr. Ritchie indicates that the trend in livestock there is toward dairy cattle and draft animals; a shipment of Brown Swiss cattle is expected to arrive in Japan next summer. He states that progress is being made in achieving their goal, and much interest is being manifested in artificial insemination.

Assistant Professor W. C. Godley of this department is now on leave from his teaching duties and has assumed the role of student again. He is presently at North Carolina State College and is working on his Master's Degree. News indicates he is doing major work in breeding, while production and statistics hold secondary importance in his academic strivings. Mr. Godley intimates that the housing situation in those parts of the Old North State is grave, as elsewhere, hence his family has not joined him there.

Horticulture Students Set Up New Club Room

The basement of the Ag Building has been more of an eyesore than anything else but recent days have disclosed a glittering touch in this once drab spot. A room once used for dull lab periods is now replete with the latest in modern furniture to duplicate all that the best living room in a home might offer. The color scheme is bright, but conservative. The homelike atmosphere provides a background for the activities of the Horticulture Club; it's the newest on the campus, and it's one that might well be the envy of any other club. The new club room is the culmination of much effort on the part of students interested in Horticulture, the faculty members of this department, and Clemson friends and supporters.

F. F. A. Boys Attend State Fair

Attending a mass meeting of the J. H. A. and F. F. A. members at the State Fair on Tuesday, October 19, were Frank Hart, "Ed" Hucks, Len Reynolds, Don Johnson, Carroll Gulledge, J. C. Jackson, and Ted Melton of the Clemson Chapter. The meeting, at which speeches were made by J. T. Anderson, S. C. State Supt. of Education, and Mr. Sloan, representing the Governor, was held at the Carolina Stadium in Columbia.

Alpha Zeta Takes in New Men

The South Carolina Chapter of the Fraternity of Alpha Zeta initiated nine new men on November 8. These men were selected on the basis of scholarship, character, and leadership. They were initiated after having undergone a week of informal initiation.

The new members are Richard Baird, agronomy senior of Darlington; James C. Bishop, horticulture senior of Beaufort; William B. Boykin, agronomy sophomore of Boykin; Harry Falls, Jr., animal husbandry senior of Asheville, N. C.; Henry A. Smith, horticulture senior of Greenville; Calvin C. Taylor, agricultural economics junior of Greenville; John F. Wise, animal husbandry senior of McCormick; and Smith Worley, agronomy senior of Windsor.

Recently S. P. Young was elected to attend the National Conclave to be held in Washington on December 29, 30, 31, and January 1. Work has recently begun on the chapter history and it will be ready for presentation at the Conclave.

The chapter is planning to adopt a set of by-laws at the next meeting and is making plans to entertain one of the founders of the Fraternity who is to be at Clemson in the very near future. At the end of the current semester the local Chapter will honor the outstanding freshmen in the School of Agriculture with various awards.

A New

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Knoxville, Tennessee

Agrarian Philosophy

By

The Editor

Will It Happen Again?

Last spring after several unsuccessful attempts from various sources to stop students from tramping down the grass in front of the Dairy Building a scheme was devised which was successful — temporarily. The grass again sprang up and the Ag Campus was the pretty sight it was supposed to be. It appeared that the problem had been solved.

With the coming of fall and a new semester students are again walking across the grass. Unless something is done soon the same ugly sight that greeted visitors last year will again appear.

Let's all make a special drive to remind those who are inclined to take the short cut. If we start now we may be able to save much expense later on and be able to preserve rather than restore Clemson's pretty campus.

Community Chest Drive To Begin Soon

The Community Chest Drive at Clemson will be inaugurated during the week of December 6-11. This drive will eliminate all the smaller miscellaneous drives from time to time that have been plagueing student's wallets in past years. It is being sponsored and carried out by several of the top honor and service fraternities on the campus.

The proceeds will be split between the YMCA, Tuberculosis Fund, Cancer Fund, Infantile Paralysis Fund, and several smaller miscellaneous causes. The goal for this drive has been set at $5,000.

This drive has the full endorsement of the administration and if it is successful this year it will probably be continued in following years. All students are being asked to join whole-heartedly to make this campaign a success.

Now Is The Time To Start

During the last month or two just about every club in the Ag School has taken in new members. Now that they have these new members, what comes next on their agenda?

Are they going to fall into a rut and beat time for the rest of the semester or are they going to "get up steam" and really do something worthwhile. Several of the departmental clubs have accomplished worthwhile projects but on the other hand many don't. This is a challenge to the officers of these clubs to really put their clubs on the map by actually accomplishing something.

There is certainly no point in suggesting projects because they are certainly conspicuous enough. Remember the old saying, "Anytime is a good time to start to do things but next to yesterday, today is the best day."

THE WINNER

"The man who wins is an average man,
Not built on any particular plan;
Nor blest with any peculiar luck—
Just steady and earnest and full of pluck.

When asked a question he does not guess!
He knows and answers "No" or "Yes."
When set a task the rest can't do
He buckles down and sees it through.

So he works and waits, 'till one fine day,
There's a better job with bigger pay.
And the men who shirked wherever they could
Are bossed by the men whose work made good.

For the man who wins is the man who works,
Who neither labor nor trouble shirks;
Who uses his hands, his head, his eyes—
The man who wins is the man who tries.

—From a poster on the Purina Farm.

An Inspiring Four Weeks Experience

By SAM E. McGREGOR
Dairying, 1949

Imagine a four weeks session which covers complete courses in nutrition, feeding, personnel management, business administration, advertising, ethics, Bible, and balanced living. Does that sound impossible? Then you don't know Mr. William H. Danforth, founder of the largest feed company in the world, Ralston-Purina Company. Mr. Danforth has incorporated these experiences into a four weeks summer fellowship known officially as The Danforth Fellowship. This fellowship is open to all rising seniors in most of the agricultural colleges in the United States and also in Canada.

The students are selected on the basis of scholarship, character, and leadership and are selected by a faculty committee from each school. They are selected in the spring and spend two weeks with the Ralston-Purina Company in St. Louis and two weeks at Camp Miniwanca, the American Youth Foundation leadership training camp, on the eastern shore of Lake Michigan. I was privileged to represent Clemson on this trip this past summer.

Arriving in St. Louis August 1, the thirty-five students from as many colleges throughout the United States and Canada assembled and started getting acquainted. The next morning we met Mr. Earl Sindecuse, who was to be our host in St. Louis, and boarded a bus for the research farm located at Gray Summit, Missouri. We spent three days at the farm observing the various methods used for research on their feeds.

Recreation was not bypassed however while at the farm. One night we formed a team and played the farm softball team. We soon found out that those farm hands knew how to play softball as well as farm. After a hot battle the "college boys" were defeated 12-11. The next night we hopped a truck and rode out to the Meramac River for some swimming. The truck almost rolled into a ditch on the way but we all got out and pushed and soon were on our merry way again.

Mr. Danforth and Sam McGregor at Camp Miniwanca.

Back in St. Louis we spent several days touring the research laboratories and hearing lectures by their well informed chemists and biologists. Other lectures included credit ratings, legal problems of a large corporation, salesmanship, and personnel management. We each had the privilege of an interview with Mr. Moise, Director of Personnel. We really saw how a large company is run and all the intricate processes involved.

Trips were taken to other firms in the city which included a day at Swift and Company and The International Stock Yards Company, another day at a national advertising company, and part of a day at a large commercial egg packing plant. We spent one day at the Merchant's Exchange, the oldest in America. Here we learned about grain futures and hedging.

The time not spent in lectures and tours was usually filled with organizing a notebook. Yes, we actually kept notebooks and by the end of the first week just about everybody was dead from "writer's cramp".

This Danforth Fellowship also took care of our social life. Social activities included a light opera, a doubleheader between the Browns and the Indians, a play at the world famous Goldenrod Showboat, and a tour of St. Louis and the Municipal Zoo. The last night there we had a banquet at a famous Italian restaurant.

This really sounds like a full two weeks but the two weeks at Camp Miniwanca were even fuller. The day began at 6:30 with a cold dip in Lake Michigan. After cleaning up the tent area everyone joined together in a fifteen minute quiet devotional period. After breakfast everyone treked off over the sand dunes to classes. Four class periods each morning included such subjects as "Life's Essentials", "Balanced Four-Fold Living", "Ethics", "Horizons", and "The Bible and the Idea of God". After classes and dinner we had another class and then the whole camp split into tribes and participated in softball, volleyball, and waterball. After the tribal games swimming and sailing were available for those who cared to participate.

At the close of the day came the most inspiring period of the entire camp. Everyone went up to vesper dune and watched the sun sink over Lake Michigan as each meditated on the message being brought by one of the camp staff. After vespers a social period was observed that included such activities as flashlight relays, small campfire groups, stunt nights, and human rodeos.

Ag students, this very same trip I have just described will be given to two more students next spring and the years after that. Wouldn't you like to win this wonderful four weeks expense paid trip?

Here is my advice to you and you can't lose. That is to live the Danforth way and "be your own self at your very best all the time." Make your own path here at Clemson and out in life. If you will endeavor to try this I can't guarantee you a four weeks trip but I know you will enjoy life as you have never before. I tried it this summer and it works.

"A winner never quits and a quitter never wins."

SHOWING a champion . . . bringing home a blue ribbon from the fair is the favorite dream of many a farm boy. That's why he spends a good share of his waking hours helping it to come true.

He garnishes his calf's ground corn with minerals and molasses—worries if it isn't licked up clean. He spends hours teaching his baby beef to lead . . . combs and curries its gleaming coat until aching arms rebel.

Dreaming dreams and then working hard to make them come true is the American way. That's the spirit which transformed a wilderness into the world's most powerful nation in a little over 300 years. That's the mainspring which made a peace-loving nation the arsenal of democracy. That's the habit which makes our country the land of opportunity and great accomplishments.

Back in 1837, John Deere's dreams and dogged determination gave the world the first successful steel plow. This new plow unlocked the wealth of the prairie soil—created a new agricultural empire. Today, the John Deere organization is pioneering new frontiers—working to make the American dream of a well-fed world a reality.

Careful preparation and lots of perspiration still make dreams come true in America. For in this free land, life is what you make it—the future is unlimited.

John Deere

MOLINE · ILLINOIS

OUTSTANDING AGGIES ON THE GRIDIRON

By RAY ALEXANDER
Voc. Ag. Ed., 1949

In the following paragraphs you will find a few descriptive words about some of Clemson's best footballers. Included in this list are the so called "flash boys" of the backfield and the "unsung heroes" that make up Clemson's forward wall. These boys have taken their places on one of Clemson's greatest gridion machines. Yet, we hardly realize, they're the guy next to us in class or the fellow that kids you about your best girl. All of us are teammates in one of America's finest institutions. This is a toast to a group which acts as our ambassadors every time they take the field for the Yellow Peril.

"BUNNY"

First, there is Bonneau Brodie. Bonneau is one of Clemson's backfield aces. At Boston, Bonneau continually caused the Eagles the greatest amount of trouble. Spinning, plunging and hitting the line ferociously. Bonneau has made his mark in the annals of Tiger football.

"Bunny" as Bonneau is affectionately called, began his junior year this fall. "Bunny" is taking animal husbandry and plans to raise cattle in Aiken, South Carolina upon graduation. His wife, Eloise, is from Hartsville, South Carolina. "Bunny" met Eloise while attending a ballet class at the Foster School of Dance. The best to Bonneau Brodie, 195 pound Tiger fullback from Aiken, South Carolina.

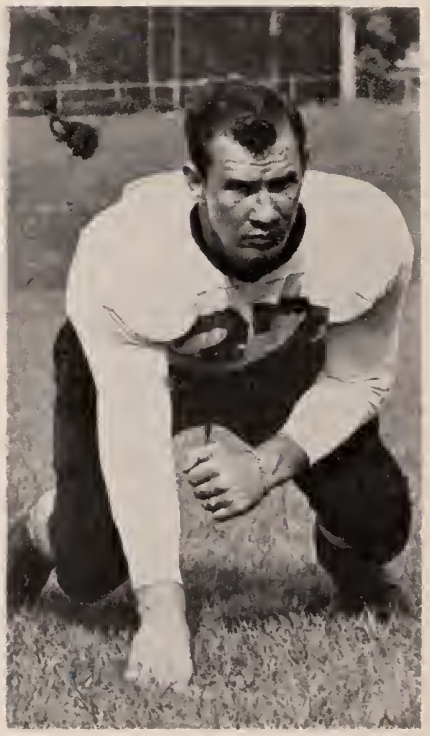
Bonneau Brodie

"JACK"

Jack Brunson

Jack Brunson, agronomy sophomore from Sumter, South Carolina, is possibly Clemson's brightest prospect for the pivot position. Jack has had plenty of experience, making letters in football and winning all-state honors on the Sumter High squad. Last year Jack saw plenty of action with the Tiger varsity. Constantly on the alert, this 6 foot, 195 pound boy has been more than we could ask for in past games. Jack Brunson has a brilliant future under the superb tutelage of Frank Howard.

"JUD"

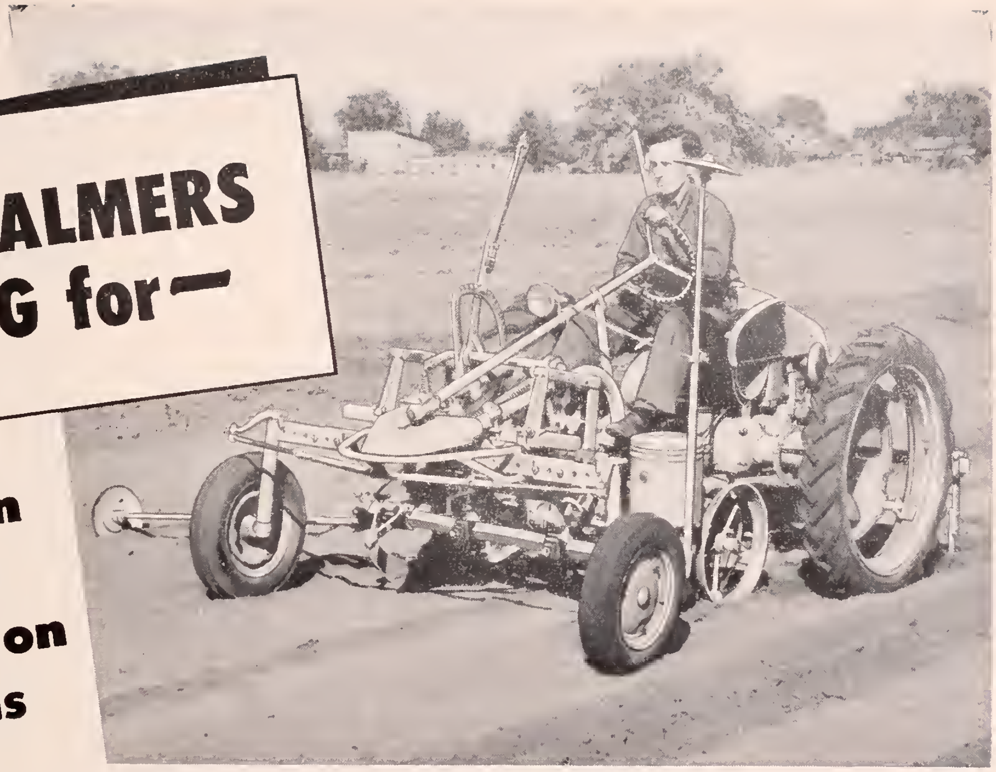

Jud Davis

Jud Davis, Tiger guard from Denmark, South Carolina, is one of our most outstanding linesmen. At the Carolina game, he made himself felt by dumping Carolina backs for loses time and again. Jud plays his heart out in every game. He has a spirit unequalled at Clemson. He plays every play as if it were a goal line stand, with only "Ole' Jud" holding down the entire line.

The animal husbandry department claims Jud for itself. Jud plans to farm at Denmark after graduation and employ his animal husbandry education as the opportunity presents itself. Whatever Jud does, he'll

(continued on page twenty)

ALLIS-CHALMERS MODEL G for—



Some jobs on ALL farms
. . . ALL jobs on Some farms

A New System of Motorized Farm Tools—

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❶ Replaces that last team of horses on all light jobs.

❷ An economical "chore" tractor — uses only 2 to 3 quarts of fuel per hour.

❸ An all-round tractor for small acreages — plows, discs, harrows, plants, cultivates, mows and does belt work.

❹ Ideal for planting and cultivating corn, cotton, soybeans, in any desired row spacing.

❺ A handy auxiliary tractor on large farms.

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FULL LINE OF TOOLS

- 5-foot Single Action Disc
- 1-section Spring Tooth Harrow
- 2-section Peg Tooth Harrow
- 2-row Drill Planter
- Attached Moldboard Plow, 12-inch Bottom
- 5-foot Mower
- 1-row Cultivator
- Multiple-Row Ground-Driven Seeders, Power Driven Seeders, Independent-Gang Cultivators
- 80-inch Single Tool-Bar adaptable to many combinations of cultivating equipment; also 60-inch Double Tool-Bar

ALLIS·CHALMERS
TRACTOR DIVISION — MILWAUKEE 1, U. S. A.

Outstanding Aggies

(continued from page eighteen)

always have as many friends as there were Clemson students in the fall of 1948.

"BIG TOM"

Tom Salisbury gained national recognition a few weeks back by blocking a punt. Proceeding to pick it up, he ran for a touchdown against Mississippi State. Tom's play has always been nothing short of spectacular. Breaking through the line and worrying opposing backs seems to be the way "Big Tom" operates.

As so many of you know, Tom hails from Summerville, South Carolina. This is his last year at Clemson and he is getting an excellent background in the field of dairying. Tom plans to lead a quiet life after graduation and maybe try his hand at farming. He plans, as popular opinion says, to send another Tom to Clemson to take up where he left off in the coming years.

Tom Salisbury

"HAPPY"

Gene Moore is perhaps the best center Clemson has had since the days of the Cotton Bowl. Always playing his best he has meant, more than once, the difference between winning and being defeated. This year against North Carolina State, Gene etched his name on the slate of great Clemson players.

Gene Moore

Gene might very well be called "Happy" because he is never seen without a smile. Lake City can very well be proud of this six foot one 195 pound gentleman. Gene is a VAE major and plans to teach a little while doing a great deal of coaching. Liked by all and feared by every opponent, Gene will do well next year in football and every year in the game of life.

"YANKEE"

We've saved this "good yankee" until the last. Playing with hurricane intensity, Ray Mathews has meant much to Clemson. If the "Noth" had tried, they couldn't have sent a better representative to Clemson College. This was brought to the attention of everyone attending the 1947 Carolina game when Ray broke away for that long, long run.

Ray Mathews

Ray majors in agronomy and will probably do government work after graduation. He has two more years with us and should be one of the South's best backs next year. McKeesport, Pa. certainly can be proud of this native son who decided to come South.

This completes a few lines about our friends and classmates who have helped our school gain national recognition. With hard work, good luck and Frank Howard, they may play before their largest audience on New Year's Day.

The cake, candy and nuts were simply delicious.

Mickey did his share by putting them where they would do the most good.

"Won't you have some more, Mickey?" asked his smiling hostess.

"No thanks," replied the little fellow, "I'm full."

"Well then put some candy and nuts in your pocket to eat on your way home."

"No, ma'am, thank you," chirped Mickey, "they're full too."

AT LAY-UP TIME this Fall—*you can help prevent the winter rust* that costs thousands of farmers the use of valuable farming equipment *if you use Esso Rust-Ban products.*

ESSO RUST-BAN 347 protects all kinds of exposed machinery metal. It is quickly and easily applied with brush or cloth, and readily removed at any time with kerosene. For plows, cultivators, disks, and other exposed implements.

TO STOP the attack of rust on the insides of idle engines, use *Esso Rust-Ban 603.* It has special properties that combat rust, and a protective film adheres to inside engine surfaces, affording important, winter-long protection. In the Spring, Rust-Ban is replaced with motor oil.

ANY ESSO DISTRIBUTOR will gladly tell you about other Esso Rust-Ban products that can mean money-saving protection for valuable farm equipment.

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AGRICULTURAL STUDENTS are offered *free subscriptions* to regularly published ESSO FARM NEWS . . . a favorite with farmers for its very complete crop articles and its many helpful tips to better farming. To get yours, please write: Esso Farm

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Student Forum of Air Inaugurated

The latest newcomer to Clemson's organizational roster is the Clemson College Student Forum of the Air, organized "to perpetuate the desires of Thomas G. Clemson, Founder of Clemson A & M College, to give the farmers of South Carolina the benefits of scientific and technological advances in agriculture. This organization, through training received at Clemson College and through the cooperation of the Extension Service and Experiment Station, shall on this program further these purposes and aims." The SFA, conceived and fostered by Frank Seddon, majoring in Agricultural Economics, breathed its first breath of fact on September 24, 1948. Frank Seddon was chosen President; John F. Alexander was elected Vice-President; the position of Secretary-Historian is filled by Johnston L. Crapse; and the club's first Treasurer is George W. Brown.

The various departments in the School of Agriculture are assisting in procuring the factual information for the agricultural programs, which began during the week of October 25th. Each week the agricultural programs will be broadcast over a network of twenty-four stations. In addition to the programs presented primarily for the farmers of South Carolina, beginning the week of November 1st the SFA will present a half-hour weekly program over the Anderson Radio Stations. The latter programs will be broadcast each Thursday evening from 8:00 to 8:30 p.m.

...if it's equipped with Armour strings. It may surprise you to learn that tennis strings are a by-product of the livestock and meat packing industry . . . just one of many by-products that enrich your college life. The livestock and meat packing industry is more than a processor of meat for good diets and good eating—it is the source of leather...soap...animal feeds...fertilizers...drugs...pharmaceuticals...veterinary supplies...chemicals...curled hair...glue...sandpaper...and a whole array of other products of farm, home, and industrial value.

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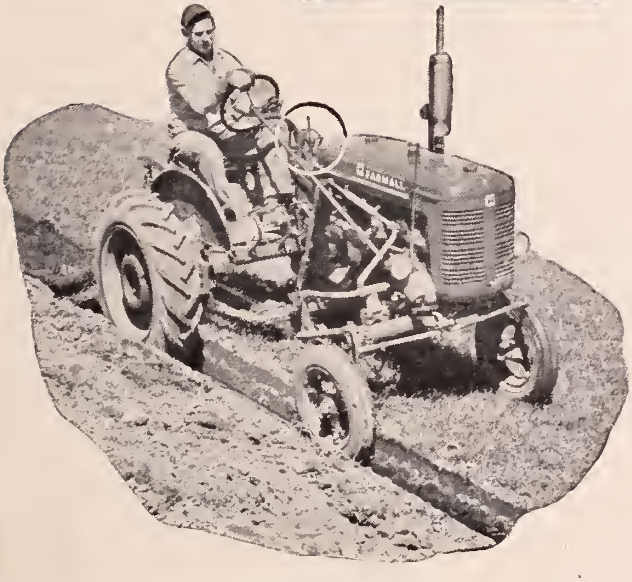
Set aside your Lawn Mower and Water Hose and PLANT **CENTIPEDE LAWN GRASS**

The new grass imported from China by the U. S. Government to provide permanent lawns in the South. Needs no mowing nor artificial watering. Grows on any kind of soil and under trees. WARNING—Several types of grass are being sold at CENTIPEDE. We are the original growers from the original imported stock. Be sure with pure culture. Write for particulars. Not adapted north of North Carolina.

LAND'S END FARM, Burton, S. C.

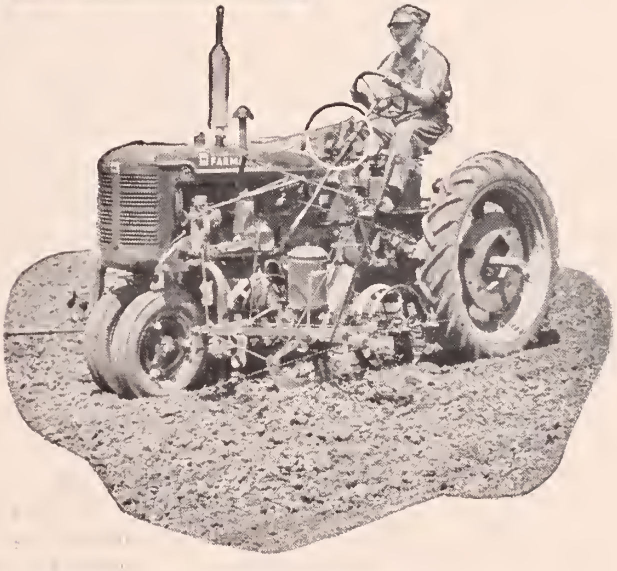
At a touch of your fingers Faster, Better, Easier Farming *with* FARMALL Touch-Control

PLOWING



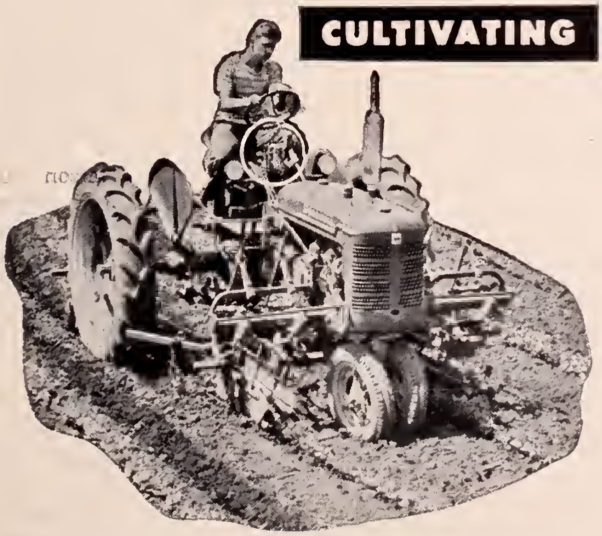
Farmall Touch-Control on this Farmall Super-A tractor lowers and raises the plow bottom and separately adjusts the drawbar height to change the depth of plowing.

PLANTING



This planter, forward-mounted on a Farmall C tractor, is easily raised by Touch-Control. Planting depth may be similarly controlled.

CULTIVATING



Front and rear cultivator units or left and right sections on this Farmall C may be lifted independently or their depth adjusted by Farmall Touch-Control.

THE MOST IMPORTANT IMPROVEMENT IN FARMALL FARMING SINCE 1923!

You will never have to tug and strain to adjust the implements on Farmalls Super-A, C, and Cub tractors. A "fingertip touch" on the Farmall Touch-Control lever instantly starts a powerful hydraulic system working for you.

You'll like Touch-Control's two-way action—so sure—so powerful. Its selective power will raise, lower, hold, or force down the implements.

Technical developments, such as Farmall Touch-Control, will continue to play a leading role in the maintenance of better, more profitable farming in America and in the advancement of approved soil conservation practices.

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Listen to James Melton on "Harvest of Stars"
Every Wednesday Night, CBS

Only International Harvester builds FARMALLS

THE LIGHTER SHADES OF CAMPUS LIFE

Last year this column printed many stories about the wheels and sad sacks of The Clemson School of Agriculture. This year, we plan to follow about the same procedure with maybe a few variations. If for some reason the data contained herein is not exactly correct, it is purely intentional and not coincidental. The only added feature that we can think of is lovely Jean Peters. With each issue, we plan to run a picture of a charming young lady to add local color. This should be better than having the usual cow stuck right in the center of this page.

At Winthrop's Autumn Ball, we were surprised to see "Lord Calvert" Gandy walking upright. Gandy usually tries the waltz on all fours after intermission. We understand that Gandy has been selected as representative for some large chemical firm. He handles all of his business through a distributing agency at Converse College.

A toast to Doctor "I've been around" Rush. Between talking about microbes and barflies, he managed to tell Lachicotte to stop mumbling in his beard. Lachicotte wasn't really mumbling — just going over that weeks Parley card.

We've noticed that "Skip" Seddon spends a great deal of his time in the radio room of the library. A lot of the fellows think that the Radio Forum is "Skip's" only claim to fame. Just ask "Skip" about that contract he plans to get with C.B.S. Yea, that's right, C.B.S. Haw!

"Stud" Klettner has released another communique to the "world outside". We might mention that "Stud" has been locked in his room since last dance counting that green stuff we affectionately call money. His communique states, "I have decided not to pay tuition this term. Instead, I'll just ask the college how much they need."

Len Reynolds plans to announce his engagement to that sweet sweet girl down at Breneau—just as soon as the FFA dues are collected. Did we say something that might mar the fine reputation of Mr. Reynolds? Wake up Len! Everybody knows about last year's Limestone escapade.

Lou Gullege has dated so much at the Nurses' Home in Sumter, they have started calling him a house doctor. Wipe your brow Lou, that's as far as we can go.

If you think the Robert Shaw Chorale was good, you should hear Sunny Dinkins and the boys after a few rounds. Sunny is the only man that can outsing Nelson Eddy while standing on his head under a cold shower.

We must congratulate Jack "Powers" Clegg on the way the Taps Beauty Contest was handled. Tell us Jack, what other girls were picked other than your sweetie?

Get that thinking cap on fellows, and win some free smokes by answering the riddles in the Chesterfield Contest. It is all so simple and easy; be sure to get your answers in soon and turn them in to room 3-228 or room 8-230. Be sure to get them in right away.

QUESTIONS

A A field of red where tragedy lies,
A cheerful thing when it's something of Ty's.

B The shamrock and the blarney stone
Have helped to make its power known.

C Ten to the sixth say they satisfy.
Ten to the zero will echo their cry.

ANSWERS WILL APPEAR IN THE NEXT ISSUE OF YOUR MAGAZINE

Chesterfield

RULES FOR
CHESTERFIELD HUMOR MAGAZINE CONTEST

1. Identify the 3 subjects in back cover ad. All clues are in ad.
2. Submit answers on Chesterfield wrapper or reasonable facsimile to this publication office.
3. First ten correct answers win one carton of Chesterfield Cigarettes each.
4. Enter as many as you like, but one Chesterfield wrapper or facsimile must accompany each entry.
5. Contest closes midnight, one week after this issue's publication date. New contest next issue.
6. Answers and names of winners will appear in the next issue.
7. All answers become the property of Chesterfield.
8. Decision of judges will be final.

WATCH FOR THE WINNERS
IN NEXT ISSUE

KAYWOODIE REMEMBERS WHEN–

REG. U.S. PAT. OFF.

Our organization of pipe-makers was just 15 years old when this Indian attack took place in Wyoming in 1866. Our people travelled by stage coach across the country in those days to see their customers. Making the best pipes has been a tradition with Kaywoodie pipe-makers for 97 years. Kaywoodies are unsurpassed for smoking quality, beauty of workmanship, and long service: "Drinkless" fitment in shank has proved to be best of all pipe filters. Kaywoodies range in price from $3.50 to $25. Identify by Cloverleaf ♣. 20-page booklet on request. Kaywoodie Company, New York and London. 630 Fifth Avenue, New York 20, N. Y.

"NINETY - FIVER" KAYWOODIE, $20. Its handsome band is solid, reinforcing the shank of pipe. Walnut-finish. Shape No. 12B.

"CENTENNIAL" KAYWOODIE, $25. A pipe that is as rare as a perfect diamond. Natural finish reveals beauty of grain. Band is solid. Shape No. 17.

ALWAYS BUY ABC CHESTERFIELD

ALWAYS MILDER BETTER TASTING COOLER SMOKING

"They're Milder - that's why I always smoke Chesterfields"

Tyrone Power

STARRING IN "THE LUCK OF THE IRISH"
A 20TH CENTURY-FOX PRODUCTION

AND TO KEEP PACE WITH THE EVER-INCREASING DEMAND

Chesterfield is building another factory

– it's large – it's modern and in the very heart of Tobaccoland where the Chesterfield Factory group and tobacco-ageing warehouses are already "A city within a city"

SO MILD *they Satisfy Millions* **SO MILD** *they'll Satisfy You*

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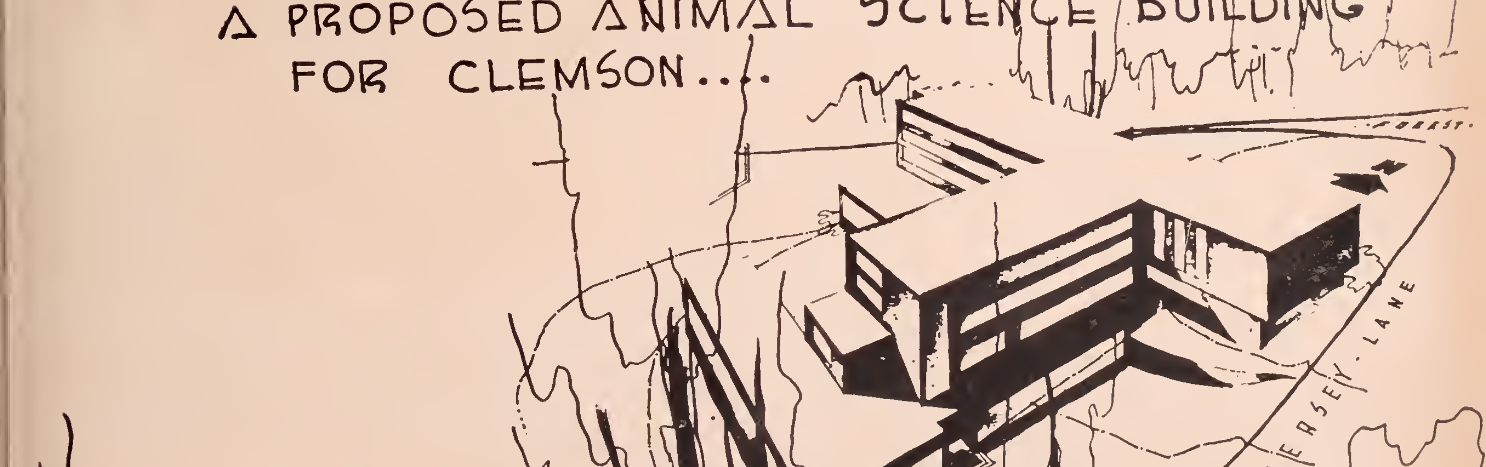
For CHESTERFIELD CONTEST See Page 24

AGRICULTURAL REFERENCE D[illegible]MENT
CLEMSON COLLEGE LIBR

The Agrarian

OFFICIAL STUDENT PUBLICATION

A PROPOSED ANIMAL SCIENCE BUILDING FOR CLEMSON...



JANUARY 1949

CLEMSON, S. C.

30-DAY SMOKING TEST PROVES CAMEL MILDNESS!

1 In a recent test, hundreds of men and women all across the country . . . of all ages and occupations . . . were closely observed as they smoked Camels—and only Camels—for 30 consecutive days. And they smoked on the average of one to two packages of Camels a day. But only Camels!

2 Every week throughout this dramatic 30-day test, their throats were carefully examined by noted specialists—a total of 2470 exacting examinations. And among all these smokers, these famous throat specialists found not one single case of throat irritation due to smoking Camels!

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The Agrarian

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VOLUME 8 THE CLEMSON AGRICULTURAL COLLEGE NUMBER 2

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COVER—An architect's drawing of the proposed Animal Science Building to be erected at the intersection of Forest Lane and Jersey Lane across from the Amphitheatre. These drawing were made by Phelps H. Bultman, architectural senior of Sumter. For further details of building see pages 3 and 4.

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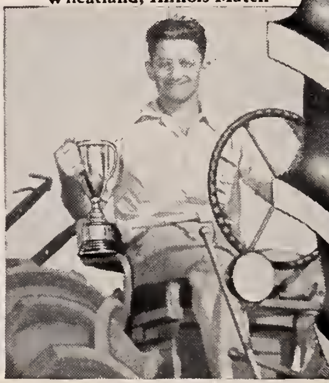

PAUL STEIFBOLD
First in Level Land Class, Dexter, Iowa Match
First in Gold Medal Class, Big Rock, Illinois

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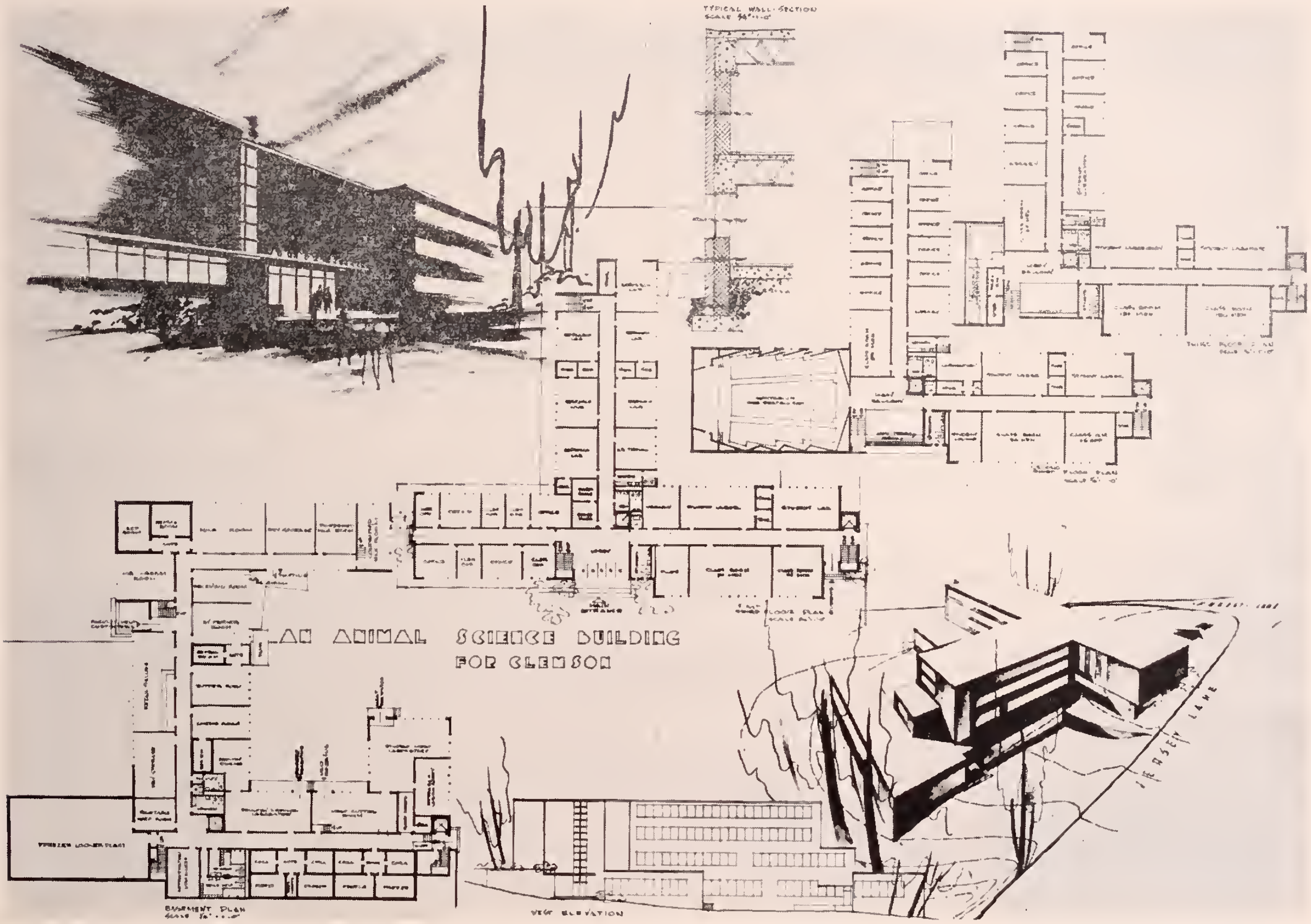
Clemson Plans New Animal Science Building



Clemson is once more in the process of taking a great stride in its advancement of the agricultural industry in South Carolina. The Animal Husbandry, Dairy, and Poultry departments have for years been handicapped in providing the necessary leadership for a growing diversified agriculture in S. C., because of the lack of research laboratories and adequate food processing facilities. When the present Dairy building was built in 1913 South Carolina was primarily a cotton and field crops state. In recent years livestock, dairy, and poultry enterprises in this state have been on a continuous and steady increase but the facilities for these departments at the state agricultural college have not increased at anywhere near the same rate.

At a conference on October 1, 1948 consisting of members of the boards of directors and officers from the Association of Practicing Veterinarians of South Carolina and thirteen statewide livestock, and poultry associations a resolution was passed asking for a new animal science building for Clemson and pledging their wholehearted support. The South Carolina Farm Bureau Federation in their December annual meeting also passed resolutions favoring the Animal Science Building and pledging their support, as did the South Carolina Guernsey Cattle Club in their December Board of Directors meeting.

It is rather startling to see a comparison of the values of buildings and equipment available to the Animal Husbandry, Dairy, and Poultry Departments of Clemson and of state agricultural colleges in neighboring southern states. While Clemson has only $349,057.42 invested in buildings and equipment for the three departments, the University of Georgia has $600,000, the University of Florida $666,000, the University of Tennessee $1,273,000 and our sister state college, North Carolina State, has more than six times as much or $2,129,700. This comparison of figures should give some idea of the inadequacy of the animal science departments at Clemson at the present time.

At the October 26, 1948 meeting of the Clemson College Board of Trustees they considered the need for improved facilities in these departments and authorized President R. F. Poole to include in the Clemson College 1949-1950 appropriation requests to the legislature an item of $800,000 for an Animal Science Building.

Through the cooperation of the Architectural Department faculty and senior students an adequate design has been developed for an Animal Science Building. Professors from the three departments met and drew up the requirements in the way of space, etc., and turned

(continued on next page)

these over to the faculty of the Architectural department who organized these requirements into a project for the senior designing class. Upon completion of the designs they were judged separately by the Architectural Department faculty and Animal Husbandry, Dairy, and Poultry departments faculties and the design chosen unanimously by all concerned is the one shown on the preceding page. This design was created by Phelps H. Bultman, Architectural senior of Sumter, S. C., and the finished plans for the building will probably come directly from this design.

The basement floor provides facilities for a pilot locker plant for research in freezing meats, fruits, and vegetables. Included with this will be all the modern equipment found in a commercial freezer locker plant. For the Animal Husbandry department there will be a large student meat laboratory and meat cutting room as well as an adequate research laboratory for meats research. This wing of the basement will contain adequate refrigeration equipment to both chill and freeze meats. Also in the basement will be a poultry dressing laboratory and storage room. The other wing will be devoted to dairy products work and will contain a large retail sales room complete with counter for ice cream sales and a milk bar. Separate rooms will be provided for ice cream manufacture and milk processing as well as a powdered milk room and condensed milk room. By-products such as chocolate milk and buttermilk will be made in a room adjoining the receiving room. Another room will contain churns and printing equipment for butter manufacture.

The first floor will contain the offices and student laboratories for the Dairy Department. In addition to the offices and two student laboratories there will be two class rooms to hold 50 and 36 students respectively. One room will be devoted to A.R. testing and there will also be space for six research laboratories.

The second floor will contain the Animal Husbandry Department offices and three student classrooms, one seating 50 students and the other two 36 students each. This floor will also contain two student laboratories and an auditorium with a seating capacity of 200 plus a balcony on the third floor with a seating capacity of 60.

The third floor has the balcony for the auditorium, two large lecture rooms with seats for 150 each and a class room for 36 men. It also contains 3 student laboratories and offices for all members of the Poultry Department faculty. Each floor will also contain a library for use by the students and faculty.

When this new building is completed, provided the necessary appropriations are obtained from the South Carolina Legislature, Clemson will be in much better position to provide for students and farmers the research and dissemination of information necessary to keep pace with the ever increasing livestock, dairy, and poultry industries

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IRRIGATE PASTURES AND FIELD CROPS?

Clemson Expert Discusses the Additional Possibilities for Irrigation in South Carolina

By H. Z. DUFFIE
Extension Asst. Agric. Engineer

Should we limit irrigation in South Carolina to truck crops? Most informed people think not but usually express themselves with caution. It is certainly a matter of economics. Factors governing the economics of irrigation are (1) availability of water, (2) amount of equipment necessary, (3) soil fertility, and (4) value of the crop.

The distance of a stream or pond from the field to be irrigated and the shape of the field will influence the amount and size of pipe where irrigation is done by sprinkling. This is illustrated in figures 1 and 2.

The corn and pasture shown in Figure 1 could be irrigated with practically the same amount of equipment that it would take to irrigate the field of corn shown in Figure 2. The cost of an irrigation system for either of the situations illustrated (Figures 1 and 2) would vary with the type of equipment and the shrewdness of the buyer. In addition to the equipment a pond might also be an added expense. If the stream flows at a fairly high volume very little damning would be required. The smaller the stream the larger the reservoir must be up to a size sufficient for four irrigations without refilling. Some streams would require no damning.

The amount of equipment needed also depends upon the length of time it takes to cover a given acreage. Since the majority of irrigation systems used in South Carolina require pumping we are speaking here in terms of sprinkling and pumping. To irrigate 10 acres in 2 days would require a much larger pump and probably more and larger pipe than if the 10 acres were to be irrigated in 5 days. The nature of the crop would be a decisive factor in figuring the number of days it would take to irrigate.

Soil fertility and fertilizing practices will determine the returns from irrigation in no small degree. Moisture and fertilizer is the answer we are seeking. At the present time, many farmers are applying fertilizer to the point that moisture is now one of the main limiting factors holding yields down.

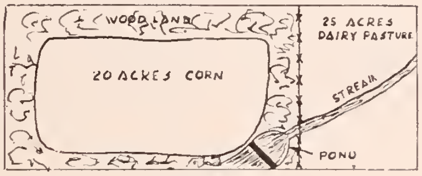

Figure 1

Outside of truck crops, peaches alfalfa, corn, and pastures comprise most of the acreage being irrigated in the state. No cotton, nor small garins, and very little tobacco is irrigated at this time. The need for irrigation is increased by the inability of some crops to withstand dry periods without permanent damage.

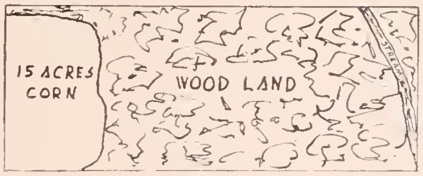

Figure 2

Cotton is one of the crops that drought does not harm to any degree. The root system of a plant may not be able to reach moisture once evaporation and percolation over a period of a week has caused moisture to escape from the top layer (2 in. to 4 in.) of the soil. It stands to reason that a shallow rooted crop needs more frequent application of water. Small grains usually receive the necessary rainfall during the winter months but sometimes suffer during the spring. Corn is a shallow rooted crop. Experimental irrigation at Clemson in 1947 by the Agricultural Engineering Department has shown an increase of 20 or more bushels of corn per acre. Alfalfa irrigation has produced significant increases in yields although alfalfa is not a shallow rooted crop. Irrigation has been used to provide annual grazing during periods in which pastures would have suffered for lack of moisture.

Farmers are buying irrigation systems for peaches. In several cases the increases in yields have paid for the system the first year of use. Some are buying systems for truck crops and using them on fields if the need arises. If an irrigation system is to be installed, plans should be made to make full use of it even if it means modifying the cropping practices.

Very few farmers are buying irrigation systems for corn alone. Several have purchased irrigation outfits for pasture and corn, or corn and alfalfa. If a farmer is planning to irrigate a field crop, he should consider the returns he will receive from irrigation against what the system will cost over a period of about 10 years. The profitability of field crop irrigation comes down to a matter of individual cases with all the factors listed having an influence.

NEWS FROM '48 GRADS

Animal Husbandry

T. C. Cartwright is doing graduate work in animal breeding at Texas A. & M. College at Austin, Texas.

L. F. Cato is Assistant County Agent in Chesterfield County.

J. E. Craig is employed as Farm Management Supervisor in Denver, Colorado.

Ray Fleming is doing statistical work in Columbia.

C. J. Gulledge has chosen farming for his occupation at Sumter.

W. H. Kennick is engaged in farming at Chester.

H. F. Livingston is Assistant County Agent in Dillon County.

H. G. McCall is farming at Clio.

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DEVELOPMENT OF GUERNSEYS IN CHESTER COUNTY

By J. E. CUSHMAN
Dairying, 1949

In our travels through this historic state of our this summer and early fall, we have heard many interesting stories about the development of our section of the great Southland.

This article is devoted to bringing to you some of the interesting historical facts concerning the development of a special program which brought prosperity and a nationally recognized reputation to a section of South Carolina known to us as Chester County. This program is the populating of this county with good dairy cattle — Guernsey dairy cattle in particular. As a result, Chester County is now nationally recognized as the "Guernsey Center of Dixie". The men behind the lines who were the "guiding hands" in this advancement were Clemson men. They were the men who worked in the Extension Service, The Experiment Stations, the Dairy Educational Department — all these having their headquarters in Clemson. Therefore, Clemson, who has many of her sons located in Chester County becoming men of "repute" in the dairy industry, might well take great pride in having helped greatly in supervising another agricultural advancement for South Carolina.

Here, in retrospect, we find many interesting and important event taking place in the Guernsey cattle history of Chester County.

On a snowy, wintery day in December 1886, a Guernsey heifer calf was born . . . a purebred, the first to be born in Chester County, S. C., only one generation removed from the romantic little Island of Guernsey in the English Channel, the homeland of the Guernsey breed. Appropriately named Carolina Snowdrop, her birth, less than 20 years after the first Guernseys were imported to the United States, set in motion a chain of events which was to establish Chester County as the premier Guernsey breeding county of the Southern States and changed the course of the county's agricultural economy. Historically, the appearances of Carolina Snowdrop, her dam, Belle of Chester, and her sire, Carolina Prince in the county, and the founding of the early Scotch Irish settlements are strangely akin. These facts have been the inspiration for all the people of this Guernsey county to join in neighborly commemoration of these events — a festive celebration they have pleased to call the Chester County Guernsey Festival which is held each fall in the city of Chester.

History records the early settlement of Chester, Lancaster, and York counties, Pennsylvania, by Scotch and Irish immigrants. Finding the climate there too rigorous for their liking, many of them migrated southward looking for a milder climate and lands suitable to grass and animal husbandry. Some of these migrations came to South Carolina and converged into the territory now known as Chester, Lancaster, and York counties. Soil scientists now refer to this territory as part of the South Carolina "grass belt", a modern tribute to the instinctive judgment of these early pioneers.

Early in 1884, David R. Flennikin of Winnsboro, South Carolina, purchased three purebred Guernsey heifers and a Guernsey bull from S. C. Kent of Westmore, Chester County, Pennsylvania. These four he showed at the Chester County, S. C. Fair in the fall of 1884 where Judge Lyles Glenn, Sr., and his father-in-law, J. C. Hardin, purchased the lot.

Inherently these early pioneers were lovers of livestock. This tradition survived generations of a cash crop economy to take root again virtually with the birth of the heifer calf Carolina Snowdrop. The influence of this purebred Guernsey calf may well have been the spark which kindled the growth of the Guernsey industry in the county, for her son, Scot of Delta, and his daughters were responsible for the first notable sale of Guernsey outside the county to prove that the breeding of these cattle was profitable business. From that date on, Chester County began to be known as a "good source of Guernsey cattle."

Events moved swiftly from 1885 over the next 62 years to establish Chester County in the undisputed position as "The Guernsey Center of Dixie." Importations of purebred Guernseys from Ohio in 1918 and 1919 served as foundation stock for many other breeding herds in the county. The now historic "Scrub Sire Eradication Campaign" of 1925, joined in by farmers and businessmen alike, saw three full car loads of scrub bulls leave the county for the Richmond market. In their places, aristocrats of the Guernsey breed were stationed throughout the county to mark a second milestone in this Guernsey history.

This campaign was followed closely by the formation of the Chester County Guernsey Cattle Club, an active group of Guernsey Breeders which in 1936 held the first of an unbroken series of annual purebred consignment sales in Chester from which foundation breeding stock has gone throughout the Southeast. It was this club which sponsored the organization of the Chester County Guernsey Calf Club in 1926, a continuing band of enthusiastic youngsters who have shown winners at fairs throughout the state and the National Grand Champion Guernsey 4-H heifer at the National Dairy Show in 1928.

During the 1920s to this date, annual sales of grade and purebred cattle have averaged between $100,000 and $150,000. In 1937, the first organized group sale of Guernsey Grade A Milk was made in the city of Charlotte. This marketing activity has grown so that in 1947 Chester County Guernsey breeders sold in the vicinity of 6,500,000 pounds of Grade A milk into the Columbia, Sumter, Bishopville, Rock Hill, Chester, and Great Falls markets. Much of this milk is being marketed under the national copyright "Golden Guernsey Milk."

The third most significant event in this march of Guernsey breeding progress was the opening of the large Borden evaporated milk plant in Chester in 1940, with its milk routes extending to all parts of the county and adjacent territory. Thru this system of marketing, 1200 farmers sold 20,000,000 pounds of milk in 1946, which, together with the Grade A milk sold, will have a gross value of $900,000 to $1,000,000.

(continued on page 20)

RURAL ELECTRIFICATION IN THE MARCH OF PROGRESS

By S. P. YOUNG
Agricultural Engineering 1950

With President Franklin D. Roosevelt's Executive Order establishing a Rural Electrification Administration in May, 1935, and Congress' Rural Electrification Act of May, 1936, the path was cleared for the development of an important enterprise — rural electrification.

When electricity for public use appeared as a business, little attention was paid to the rural areas. However, in 1910, alert utility executives, seeing the ready market in these areas for gasoline engines, pressure oil systems, and other such manufactured goods, decided to try to sell the farmer electricity. Their campaign began slowly; as late as 1924, only 2.6 percent of the farms in the United States had central station service. Since, at that time, farmers had to pay for the construction of power lines and also a very high rate for their power, there is little doubt as to the reason for this slow development. There were not enough wealthy farmers in the country at that time who were willing to spend the money needed for the cost of line construction. Thus, a very slow and gradual increase continued until 1935, when President Roosevelt's Executive Order removed the barriers to development of rural electrification service. The project received from this order and the subsequent Rural Electrification Act the necessary impetus for its expansion. Growth of electrification is due largely to R.E.A. because it not only lent money for construction of lines, but stimulated private utilities to build in many areas.

The increase of power lines in our rural areas has brought about a trend toward electrification on the farms of South Carolina. According to Mr. G. H. Stewart, leader of agricultural engineering work, the latest available figures on the actual number of different kinds of electrical equipment on South Carolina farms and other information pertaining to this area as given below. There are 125 electric sweet potato hot beds and 30 electric sweet potato curing houses in the state. Since 1940, the percentage of farms with running water has increased from 3.5 percent to approximately 15 percent. There are 9 barn hay driers, 3 grain drying plants, and 4 community de-hydrators here in South Carolina. 68.9 per cent of the farms have electric service available, and 95 percent of these have radios in the home. Also, there are 4 electric pumping plants for irrigation and 70 freezer locker plants.

R.E.A. is not the only organization supplying power to the 152,275 rural customers in South Carolina. In addition to the 23 R.E.A. cooperatives, there are 10 private utilities, 19 municipalities, and 2 federal projects bringing electric service to the farmers and other rural customers in this state.

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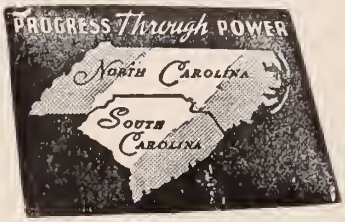

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MECHANIZATION STRENGTHENS COTTON REGIME

The author is shown above piloting one of the modern McCormick-Deering cotton pickers being used in the South.

By CLYDE R. ALLEN
Agricultural Engineering '49

For many years mechanically minded farmers have dreamed of a cotton harvester. and after years of trial and error development these men are beginning to see their dream materialize. During the past decade much research has been done with mechanical cotton harvester, and now we are beginning to see a few satisfactory designs on the market. The cotton harvester has not reached a state of perfection, but it has advanced to a stage that gives us assurance that perfection is not too far away. The ingenuity of the American farmer has repeatedly been shown throughout the agricultural history of our country, and in the appearance of the mechanical cotton harvester is about to show itself again.

There are certain requirements that a mechanical cotton harvester must have before it will be accepted by the cotton producers. It must be able to compete with hand picking in the following ways: it must not damage the fiber of the cotton, it must not gather in too much trash with the lint, it must be of simple design and comparatively easy to operate, it must be adaptable to different soil and topograghicl conditions, it must be able to pick about ninety-five percent of the lint, the machine must be versatile enough to allow for purchasing economy, and it must be sold by a reputable farm machinery company to be accepted by the public. These requirements are generally true but they will vary somewhat with the locality.

As often happens with farm machines that are comparatively new, occasional changes and refinements in the design of the mechanical cotton harvester to fit certain conditions in various parts of the country have been necessary. In fact, these changes, based on more and more field experience, are still being made and the machine that we now have is the product of many years of development.

With the advent of the cotton harvester, full mechanization has become possible. The cotton harvester promises to be a wonderful new labor saver. Dr. George J. Wilds, president and general manager of Coker's Pedigreed Seed Company, Hartsvile, South Carolina, says, "The curse of the South has been cheap labor, and to produce cotton profitably it has often been impossible to pay a decent wage, especially for picking. The mechanical harvester points to a new and more profitable way of growing cotton. I believe that most of the cotton will be picked mechanically, but in connection with mechanical picking we will have to revise our operating methods very considerably up to harvest. First of all we will have to rearrange our fields to make longer rows and thus reduce turn-around at the ends of rows. Cleaner farming which means better farming, will be very necessary. This will be accomplished by more thorough tillage and more careful and more frequent cultivation so that at time of harvest there won't be any weeds or grass to bring down the grade of the cotton. I see interesting possibilities in flame cultivation to help produce a clean crop. We are also obtaining a cleaner crop both for mechanical and hand picking by the extensive use of aerial defoliation."

The efficiency of the cotton harvester depends greatly on the external structure of the cotton plant. As new strains of cotton are developed and as cotton gins are adjusted to gin cotton that has been mechanically picked, the mechanical harvester will become more prevalent.

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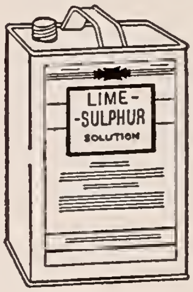

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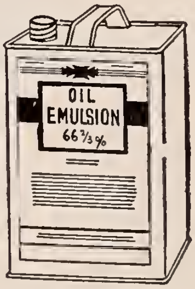

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GEORGE B. NUTT

By **S. T. RUSSELL**
Agricultural Engineering 1948

Professor Nutt, Head of the Agricultural Engineering Department at Clemson College was born August 26, 1908 in Enterprise, Mississippi. He began his educational career by attending Clarke County public schools and garduating from the agricultural high school of the same county.

While attending Mississippi State College, he was employed by the Agricultural Engineering Department. One of his duties as a part-time employee was as a Student Assistant, instructing laboratory courses in farm machinery. During this period at Mississippi State College he was an officer in various clubs which is indicative of the prestige and popularity he held as a student. Some of these clubs were: Agricultural Engineering, Alpha Zeta, Agricultural Club, Y. M.-C. A. Cabinet, and many other clubs in which he served as either an officer or as an active member. He received his Bachelor of Science degree in Agricultural Engineering from this college in 1930.

After completing his studies at Mississippi State College, he was employed by International Harvester Company in Chicago, Illinois as a Junior Progressive Employee until September, 1932, after which he came to Clemson. Since 1932 Professor Nutt has been responsible for the agricultural engineering activities of the School of Agriculture and Agricultural Experiment Station at Clemson College except for periods of leave in 1936, 1940, and 1944.

He received his Master of Science degree at Iowa State College in 1940 with a major in farm power machinery.

When he came to Clemson in 1932, Agricultural Engineering was administered by the Department of Agronomy. Professor Nutt held the responsibility of being the only Agricultural Engineer connected with the School of Agriculture until 1936 when an assistant was employed.

In 1938 research was started in the Agricultural Engineering field at Clemson College. The program in research has been widely expanded since that date, a part of which is conducted in cooperation with the United States Department of Agriculture.

It was not until 1941 that the board of trustees established the Department of Agricultural Engineering at Clemson College under its own heading. Although the progress of this department was temporarily disturbed by World War II, it is now larger and is graduating more men than ever before. There have been one hundred and thirty men graduated by this department, sixty-four percent of them reside in South Carolina and ninty-two percent reside in Southern States.

For a period during World War II, Professor Nutt was absent from Clemson College. During this time he was employed in war work as a Senior Agricultural Engineer by the United States Department of Agriculture, Office of Foreign Agricultural Relations. He was in charge of designing and developing equipment for recovering rotenone from the tropical plant, derris. This work required extensive travel in Central and South America.

Professor Nutt says that the trend toward farm mechanization has resulted in rapid expansion of the Agricultural Engineering Department in order to take care of the teaching load and research problems. The staff numbers 10 at Clemson in addition to three men at branch experiment stations.

The Agricultural Engineering Department has been assigned the responsibility of the harvesting phase of a regional cotton mechanization project which is financed from provisions of the Research and Marketing Act. This work involves the use of commercial harvesters, both spindle and stripper type. The modification of this equipment to meet the requirements of this area is an important factor; however, the problem of weed control ranks among the top problems. Professor Nutt is chairman of the executive committee for this project. He said that the work completed to this date shows that cotton can be grown and harvested successfully with power machinery.

In 1947 the South Carolina legislature appropriated $250,000 for the construction of an Agricultural Engineering building. The preliminary plans for this building has already been completed and the final plans will be completed in the near future.

The man who pulls the trigger on the gun receives all the credit, but the man who loads the gun with the proper ingredients is truly our hero. Professor Nutt loads the gun for the Agricultural Engineering Department. Our hats are off to the man who loads the gun for he is the "backbone" of this striving and progressing department.

BETWEEN THE

Young Attends Meet

Parker Young, agricultural engineering major of Dalzell, represented the South Carolina Chapter of Alpha Zeta at the biennial conclave held in Washington December 29, 1948 through January 1, 1949.

The business of the convention was carried on through various committees. These committees formulated plans after which they were submitted by the chairman to the group to be voted upon and accepted or rejected. Parker served as chairman of the National Objective and Activities Committee.

Two of the founders of Alpha Zeta, John F. Cunningham and Charles W. Burkett were present at the conclave and made adresses. They were very helpful in carrying out the business of the Fraternity.

In a contest held to judge the best history submitted from the different chapters the South Carolina Chapter was awarded eighth place.

Alpha Tau Alpha Has Feed

Stiles C. Stribling, agricultural editor for the S. C. Extension Service at Clemson, was guest speaker at the biannual steak supper of Clemson's Kappa Chapter of Alpha Tau Alpha recently at Walhalla. Thirty members and their guests were present for the occasion.

Stribling was introduced by the president, Bud Rallings, who gave a brief history of the speaker's career. Mr. Stribling came to Clemson in his present capacity after serving as county agent for Cherokee county for some thirty years.

The speaker stressed the need for qualified men in the profesion to transport information to the farmers and interested people. He also stated that the graduates in Vocational Agricultural Education had an excellent opportunity to serve in that capacity.

D. L. Johnston Elected to Head F.F.A.

D. L. Johnston was recently elected President of the Clemson College Chapter of Future Farmers of America replacing L. D. Reynolds. Johnston, from Windsor, S. C., is a senior in vocational agriculture education at Clemson.

Others elected to assist Johnston are: T. A. Hyder, vocational agriculture education junior of Campobello, S. C., Vice-President; Ed Hucks, Jr., of Aynor, S. C., Secretary; T. E. Johnston of Moncks Corner, S. C., Treasurer; J. A. Neves of Taylors, S. C., reporter.

Dr. Aull Attended Ag Meeting at Raleigh

Dr. G. H. Aull, head of the Department of Agricultural Economics at Clemson College, attended during the week of January 2-7 a very important meeting of the executive and advisory group in connection with the regional research project to study economic losses in marketing Irish potatoes.

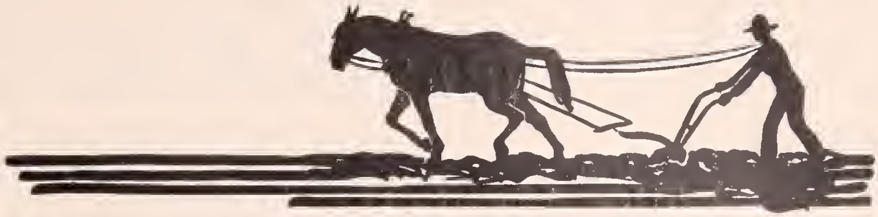
At this meeting the members discussed last season's progress and made some interesting plans for next Irish potato season. A group of field workers are supposed to begin work in Dade County, Florida, in Februrary and move north during the potato-season thru Alabama, South Carolina, North Carolina, and Virginia.

Dr. Aull plans to use two or three February graduates of Clemson to aid in this work during the coming year.

ASAE Elects Russell

Clemson's chapter of the American Society of Agricultural Engineers elected S. Tyler Russell to serve as their president for the coming school year. Russell is a senior from Jamestown.

Others elected at the same meeting were Parker Young of Dalzell to the post of vice-president, Phil Benfield of York as reporter, and A. W. Snell continues to hold his position of secretary-treasurer. Russell takes over the reins of prexy that Mark Kirkpatrick of Clio laid down upon his graduation this semester.



FURROWS

Alpha Tau Alpha Taps New Members

The National Agriculture Education Fraternity of Alpha Tau Alpha initiated fifteen members this semester. Scholarship and foreseen ability to become a good agriculture teacher and leadership comprised the basis for selection to membership. The new members are: C. D. Boggs, W. C. Carter, O. R. Cothran, J. C. Hammond, Ed Hucks, W. A. Gamble, E. H. Green, C. N. Gulledge, T. A. Hyder, R. S. Jackson, T. E. Johnson, C. H. Latham, and R. T. Moore. The club's leaders are Bud Rallings, President, and Len Reynolds, Vice-President.

Clemson Man Heads Fertilizer Officials

Mr. B. D. Cloaninger, head of the Department of Inspection and Analysis of Clemson College, was recently elected president of the Association of American Fertilizer Control Officials at a meeting in Washington, D. C. Other officers elected at that time were: Dr. F. W. Quackenbush, of Lafayette, Indiana, Vice-President; and Henry R. Walls, of College Park, Maryland, Secretary and Treasurer. This national organization is dedicated to the promotion of uniformity among the various state laws regulating the manufacture and sale of commercial fertilizer.

Swedish Economist To Visit Clemson

Mr. Sven Holmstom, Agriculture Economist with the Federation of Farmers Association, came to America to study farming conditions which prevail and research which is being done by Land-Grant Colleges and Universities in the field of Agriculture Economics.

During his stay here he made many very interesting and enlightening talks. Mr. Holmstom, explained agriculture conditions and farm problems in Sweden; surprisingly, they do not differ greatly from ours. Mr. Holmstom expressed himself as being pleasantly surprised with the conditions he noted in this country and commented that they were much better than the average Swedish Economist has been led to believe.

Ag Men In "Who's Who"

Clemson makes good! That goes for Clemson students enrolled in the School of Agriculture too! Twenty-one men were recently named in Who's Who Among Students of American Colleges and Universities from Clemson. The School of Agriculture contributed four men to this group. They are: Sam E. McGregor, Dairy major, Lykesland; Len Reynolds, VAE major, Timmonsville; Billy G. Rogers, Ag En major, Lake View; and Lewis B. Smith, AH major, Mullins.

National F. F. A. Convention

Len Reynolds, official student delegate to the recent National Future Farmers of America Convention, at Kansas City, from Clemson reports a delightful and enlightening trip. He was in Kansas City from November 14 to 18. The conclave's attendance aggregated some eight thousand delegates; South Carolina had fifty-six representatives there; two of these were from Clemson. Len reports the appearance of famous personages at this event. He specifically mentioned Monsieur Henri Bonnet, French Ambassador, Oscar R. Ewing of the Federal Security Administration, and Charles F. Brannan, Secretary of Agriculture.

Ag Engineers Boast Of Building Progress

The Agriculture Engineering Building is rapidly approaching a reality. Preliminary plans have been drawn up that include a detailed floor plan as well as a perspective of the new building. The arrangement is a T shape construction with an upper and lower story in the center portion. The two wings and rear section are of one floor height. The new structure will furnish ample space for classrooms, laboratories, shops, officers, and an ASAE club room. It is probable that the present plan will be used with possibly a few minor changes. The proposed site for the building is on Jersey Lane near the Horticultural Experimental Greenhouses. The actual construction of this building is expected to begin in the Spring.

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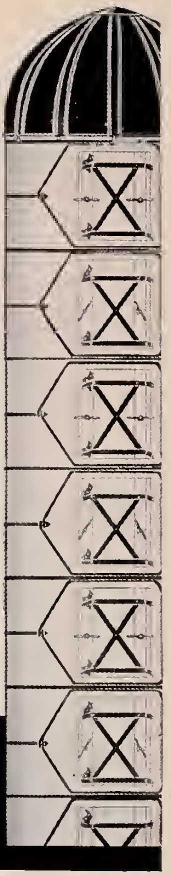

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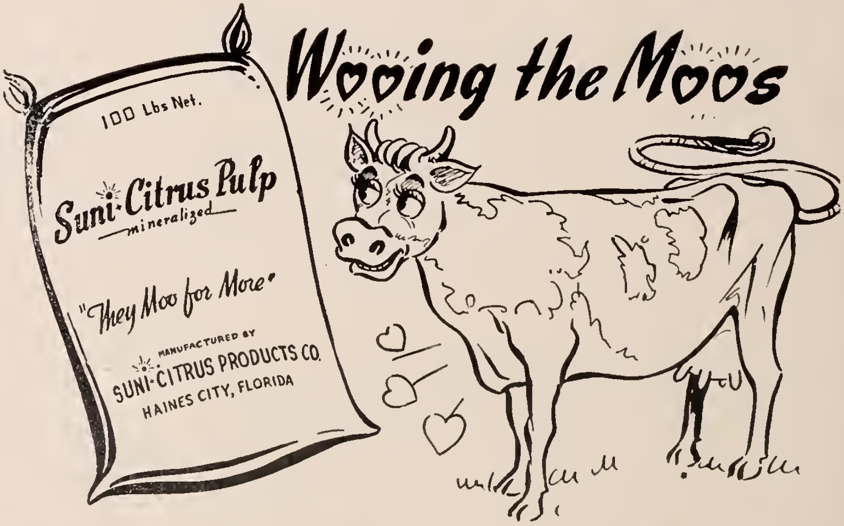

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Agrarian Philosophy

By

The Editor

NEW REGISTRATION PLANS

Yes, exams are upon us. They mark the close of another semester which leads on into a new semester and . . . . registration. This brings to Clemson students' heads nightmares of miles of tortuous and confused lines. But wait . . . there are to be no long lines this semester, according to the registrar's office. The registration problem was referred to a registration committee by the Deans and Directors of the College and is composed of the registrar and deans of the various schools. A meeting was held just prior to the Christmas holidays at which time the processes for registration were decided upon.

Under the plan worked out in order to complete matriculation early, all students may matriculate anytime between January 17 and February 4. As far as registration for classes is concerned all students classified as seniors on the official roster for the first semester will be considered in one group and all other students in another, but both groups will be allowed to begin registration simultaneously.

The seniors will be given priority in that all seniors will have begun registration by 10:30 A.M. Thursday, February 3 whereas underclassmen will continue registration on through Friday morning. A lottery system is to be used to determine the time of registration for classes. A drawing was held about two weeks ago and students will register according to the order in which the first letter of their last name was drawn.

This system, if carried out correctly, should eliminate most of the long lines and all of the shoving and confusion which held up registration last semester. The success of this system will depend entirely on the students, the manner in which they conduct themselves and the cooperation given to the administration by the students. We have all seen projects carried out successfully and we have all seen projects fail because of the students. This time I'm sure none of us want to go through the mad scramble that we ploughed through last semester so in order to insure that this system will be a success everyone should read the instructions published by the registrar's office and carry them out correctly.

AS WE SAY FAREWELL

Another semester draws to a close and with it comes another change of staffs for the AGRARIAN. The years since the war have been hectic ones for this publication with first one member of the staff graduating and then the other. Only with the help of several others outside the staff have we, the executive staff, been able to have as successful a year as we have had. Last February we started off with a large deficit on our books caused by a misunderstanding of contracts during reorganization of the staff and now we are proud to have turned out four issues and ended up with a reasonable surplus to turn over to the incoming staff.

We are certainly indebted to Professor John Lane and Dr. R. F. Poole for their help when we needed it most. Of course there are always the "Old Faithfuls"—the members of the Advisory Board, Professor Goodale and Dr. Aull. We would certainly have not been able to wade thru had it not been for the patience and helpfulness of Tom Millford, the printer, who smoothed out our errors and helped us with the technical details from time to time.

Members of our own staff should also come in for their share of the laurels — the advertising and business staff for all their efforts in getting the books back in the black, and the departmental editors who worked so diligently in writing articles regularly and turning them in on time in order to get the issue in to the printer. The biggest bunch of orchids should certainly go to the circulation staff for their unheralded and almost thankless job of seeing that The AGRARIAN'S reached their destinations on time. To every member of the staff I should like to again express my appreciation and thanks for the cooperation during the past year.

As we step out of harness and turn the reins over to the new but nevertheless somewhat experienced staff we hope that you shall carry on in the same spirit that we have strived to uphold this year. We feel sure that you will meet with the same cooperation and good will that we did during the past year but remember when the way gets tough that success is not attained by the easy road.

Wood's S-210 with 8 big ears on 4 stalks from 1 root

Clemson recommends S-210 for S. C., particularly for the Piedmont. Despite a severe drought it made 82.2 bu. per acre, highest yield of any yellow corn in 1947 Clemson Expt. Sta. tests, 8.1 bu. more than N. C. 27. At the S. C. Coast Expt. Sta. it made 5.1 bu. more than N. C. 27.

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Two weevil resistant flinty hybrids with long tight shucks, making top yields in **S. C. Coastal Plains**
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For S. C. Piedmont, Very prolific high yields, good shuck and weevil resistance:
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WINTER PASTURES — LABOR AND HAY SAVERS

By H. C. PEPPER
Animal Husbandry 1949

For nearly a score of years diversification has been the watchword in South Carolina agriculture. In the wake of such advocacy, livestock has assumed a prominent place in a type of agiculture that was conceived to derive the most profit for those who till the soil and which simultaneously has proven of value in preserving for posterity a soil heritage that is characterized by a minimum of decency and at least partially sufficient.

The livestock producer is naturally concerned with supplying a suitable and cheap feed for his animals. South Carolina's mild climatic conditions during the winter are certainly conducive to the production of winter pastures as good as those which are available during the summer. At the present time experiments along this line are in progress at the Agricultural Experiment Station here at Clemson.

The Animal Husbandry Department began a series of experiments in the Fall of 1946. Some fourteen acres of abandoned "red hills" near Clemson were chosen for the planting of winter pasture. Results are available for the 1946-1947 and 1947-1948 periods. The pastures were seeded during September. The first year's seeding was at the rate of 32 pounds of rye grass and 32 pounds of crimson clover per acre; the second year's seeding was a ratio of 40 to 20 pounds of the aforementioned respective seeds. This acreage was fertilized liberally with a 4-10-6, and each season a sidedressing of nitrate of soda, two hundred pounds per acre, was applied. The first season 1190 cow days of grazing were obtained; the next season 1111 cow grazing days were realized. The cattle pastured on these experimental parcels were mature cows with suckling calves. There was no shelter available except a small area of woodland. The cows gained over two hundred pounds per head in weight; counting their calves the gain was over four hundred pounds each. The total cost of the grazing was only 41c per cow per day, and for all practical purposes there was no labor cost.

At the same time these cattle were being grazed on winter pasture, other cattle of the herd were being fed in the barn. The cost of feeding these cattle aggregated 44c per day per cow. Needless to say, more labor was required and the cattle did scarcely more than maintain their weight. Except for such cows having calves, there was no gain realized.

The experiment is still in progress but there are inferences to be drawn at this time. Certainly the cattle on winter pasture had feed that cannot be surpassed for palatability and nutritiousness. It cannot be denied that green winter pastures are best for those who would farm with their eyes gazing toward the future. More green winter pastures in South Carolina will fulfill the prophetic note of Dr. Seaman A. Knapp: "The South will come into her own when her fields are green at Christmas."

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NATIONAL VOCATIONAL CONFERENCE HIGHLIGHTS

By **FRANK M. HART**
Voc. Agricultural Education, 1949

The National Convention of the American Vocational Association was held in Milwaukee, Wisconsin from November 29 to December 4, 1948. It was my privilege to represent Kappa Chapter of Alpha Tau Alpha at this convention. Dr. T. A. White and Professor J. B. Monroe represented the Agricultural Education Department of Clemson.

Most everyone attending the convention arrived in Milwaukee Monday, November 29, and when the preliminary registration was taken care of, we retired early in preparation for the busy days ahead.

The Schroeder Hotel was headquarters for the convention and it was a busy place throughout the week. Tuesday morning we met in clubroom "D" in which the opening address was given by Mr. H. C. Fetterolf of the Pennsylvania State Department of Education. After his address, Dr. Smith of Cornell University and Dr. Hamlin of the University of Illinois gave some of the outstanding features of the teacher training program at the two schools.

The first Alpha Tau Alpha business meeting of the week was called to order by Dr. Gaar, of Louisiana State University, who made a very interesting speech on "The Agriculture Teacher's Contribution to Rural Life". A report was given by each chapter representative and then the meeting was declared open for any old or new business, various questions were discussed and a committee was appointed to outline a national program of work. The committee's report was accepted after a very lengthy discussion. Dr. Hamlin was elected for a three year term as second vice president of the National Chapter. Many good ideas were brought to the meetings from the individual chapters and these ideas proved to be of great value to the other chapters represented.

The Wern Farm employs dairying on a large-scale. There are approximately 850 dairy cattle on this farm and it produces 7000 quarts of certified milk and 6000 quarts of grade A milk daily. Seventy-five people are employed to care for the cattle, work in the fields, and carry on a scientific breeding program. The outstanding cow on this farm is Dunloggin Mistress La Princess purchased in 1946 for $23,500.

The Pabst Farm gave us an inside view on the extensive breeding program being carried on in the State of Wisconsin. Mr. Fred Pabst is the owner of this farm which milks 150 cows, all of which go on official test at their first lacation period. The University of Wisconsin has recognized Mr. Pabst as one of the outstanding breeders of Holsteins. This farm is the home of the 1947 All American Holstein Get-of-Sire and other world Champion Holsteins, Pabst Roamer, Regal, and Comet. One of the significant things about the breeding program here is that all breeding is carried on by artificial insemination. This reduces the possibility of disease in the herd and also enables the animal breeds to utilize their outstanding sires to the best advantage.

After leaving Pabst Farm we proceded back to Milwaukee, with a good cross-sectional view of the dairy industry in Wisconsin.

On the return trip home it was my privilege to visit the International Livestock Show in Chicago. Never had I seen so many outstanding animals in one group. The Grand Champion Steer for this year was an Aberdeen-Angus. This is the first time in several years that an Aberdeen Angus has been judged as the outstanding steer in the United States.

After spending hours in the show I left for the long trip back to Dixieland and home.

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Because the strength of America lies in her free-thinking, unregimented rural population, we all have an important stake in our agriculture. New methods . . . better machines—all things that help to keep farm people prosperous and contented—safeguard our way of life. A strong, stable agriculture is insurance against evil days—a promise of brighter tomorrows!

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THE HIGH COST OF IGNORANCE

By W. P. ROBERTS
Agricultural Economics, 1949

What's wrong with South Carolina's Public School system? According to a very recent survey made, this question is not one to be shrugged off for there are a multiplicity of things that are seriously wrong.

How do we account for the fact that our graded school teachers are paid less than our neighboring Southern States, and nearly $700 less annually than the average for the nation? How account for the fact that our state spends $28.38 per child for school transportation each year while North Carolina spends only $14.00 per child? These alarming facts and figures are only a few of the many which were brought to our attention through the survey made of the public schools of South Carolina during the past year. This survey which was invited by the State Legislature through the South Carolina Survey Committee was undertaken by George Peabody College for Teachers, Nashville, Tenn., acting as a service organization. In accomplishing such a major job, the help of hundreds of interested and capable South Carolinians was necessary and fitting since they were in a position to reach and understand the the peculiar problems. Dr. George H. Aull, Head of the Agricultural Economics Department at Clemson is a member of the Survey Committee and through his connections in the state was able to make a great contribution to the success and accuracy of the report.

South Carolina a fairly small state is burdened down in details and poor management in its school policy with more school districts than the total number of districts in 8 other Southeastern states. With 1,680 school districts in our state, as compared to 172 in North Carolina, one can readily see how impossible it is for us to have a really efficient system. Our Constitution restricts the size of a district in terms of square miles, to be sure, but this might be the time to recognize our error and revise these provisions which only retard our progress and put our state at the bottom of practically every table which is compiled. The Constitution of 1895 does not, necessarily, meet the educational needs of 1949. Our Constitution also requires the election by popular vote of the State Superintendent of Education, and in other ways puts our educational system in politics. This we all recognize as an immediate hindrance which deprives an organization of sound business practices.

A person might normally assume that the children of our state enjoy the same educational provisions, more or less. This, however, is far from correct. For example, the tax levy to support a child in Clarendon County would have to be six times as great as that of Richland County to provide approximately the same educational facilities and services. The differences are due to inequalities in the distribution of taxable wealth. In many cases, children aren't aware of these facts, but we are. We can do something about the situation, but as yet they can't. The cry that we cannot afford an over-all provision for our state's children is unsound and wrong—annually we in South Carolina spend $69,000,000 on liquor, cigarettes, etc., while we spend only half this amount, $34,500,000 for schools.

Every day 100,000 boys and girls are out of school in our state — either absent or not enrolled. This surprising figure would be reduced greatly, it appears, if our schools were made attractive enough to these pupils and the laws protecting them made more suitable to the needs.

What's wrong with South Carolina's transportation system for its school children? Some of the busses which carry the pupils to and from school each day are bought, maintained, and operated by the individual school districts. These busses are operated by drivers who function under contracts with the districts. An operator might be encouraged to go a little out of his way to pick up and deliver passengers. Some of the vehicles used for transportation of school children are provided by school districts, whereas some are privately owned, resulting in many complications and differences. Our state pays 3 MILLION DOLLARS A YEAR for school transportation and still has a poorly and inefficiently managed business with costs varying greatly and with the state paying a premium on inefficiency rather than discouraging it. Little efficiency and satisfaction can be expected from these systems.

Are we as South Carolinians interested in the welfare and educational program for the children of our state? We can hardly afford to learn of these shortcomings in our educational system without making some move in an effort to correct them. The school children of our state need our awareness and action—we need the children.

The facts in this article were derived from a report by the South Carolina Education Survey Committee. The survey Committee recommends a reorganization of the system and a "Minimum Foundation Program" of finance which will do much to rectify the evils in our present system. It is to the interest of all of us to get behind this program.

DEVELOPMENT OF GUERNSEYS IN CHESTER COUNTY

(continued from page 7)

The latest and most modern step in the expansion of a quality breeding program is the organization of the Chester County Artificial Breeding Association, through which any farmer will have access to the breeding value of the best sires in the breed.

Thus from small beginnings in 1884, the influence of the Guernsey cow has spread from Chester County throughout the Southeastern states. Because of it, a new agricultural economy has come to Chester County. A sturdy people who would not entirely forsake their inherent love of livestock have combined the utility of the Guernsey cow with the natural resources of a grass soil to produce a stabilized agriculture in the heart of Dixie.

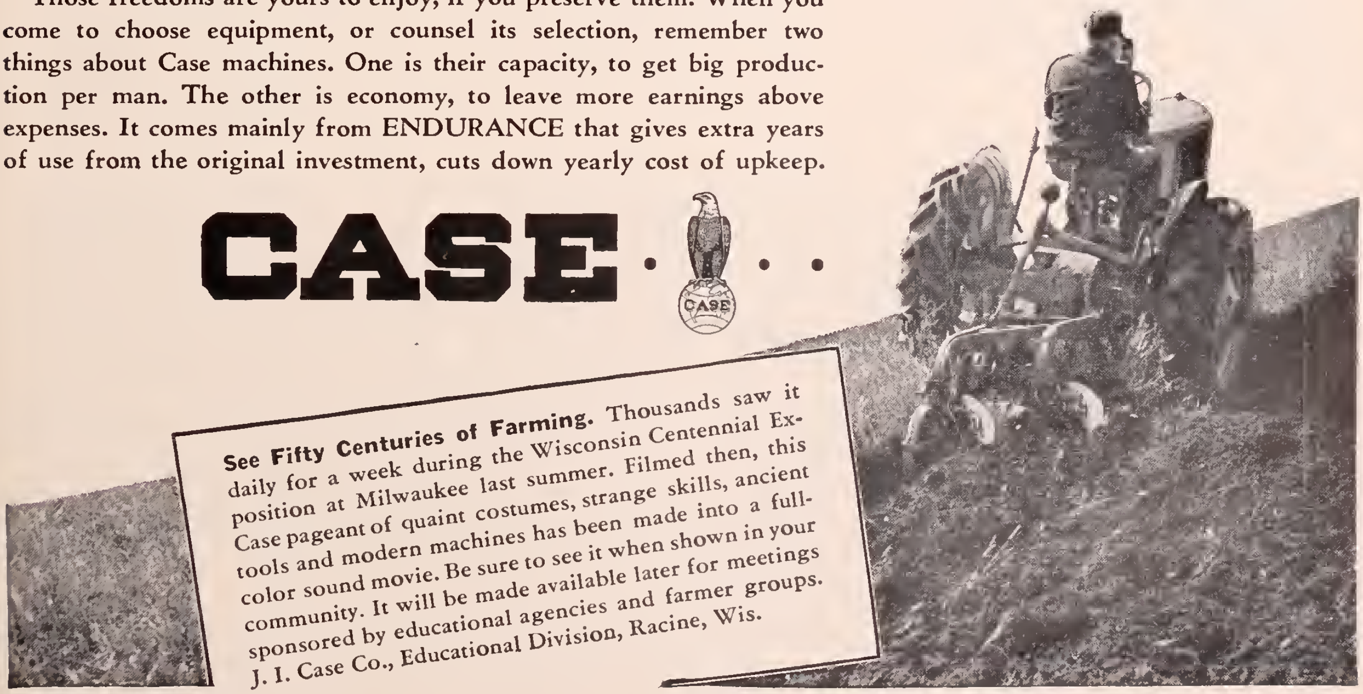
Beasts of Burden
. . . *Fifty Centuries Ago*

○ All the fabulous fertility of ancient Egypt's soil, enriched each year with flood-borne silt from the Nile, was not enough to make man's living much better than that of animals. He was a slave, not merely to other men, but more to lack of power and implements to multiply his strength as he tried to till the earth. Egypt had seed and soil for high yield per acre, but the *yield per man* was low.

Today, many old-world peasants and oriental coolies get higher yields, figured by the acre, than those of the American farmer. Yet they are poor, while he prospers. He has freedom to use American farm machines, freedom to enjoy what he earns by his high yield per man.

Those freedoms are yours to enjoy, if you preserve them. When you come to choose equipment, or counsel its selection, remember two things about Case machines. One is their capacity, to get big production per man. The other is economy, to leave more earnings above expenses. It comes mainly from ENDURANCE that gives extra years of use from the original investment, cuts down yearly cost of upkeep.

CASE . . . .



Case Model "VAC" tractor with 2-bottom rear-mounted plow.

See Fifty Centuries of Farming. Thousands saw it daily for a week during the Wisconsin Centennial Exposition at Milwaukee last summer. Filmed then, this Case pageant of quaint costumes, strange skills, ancient tools and modern machines has been made into a full-color sound movie. Be sure to see it when shown in your community. It will be made available later for meetings sponsored by educational agencies and farmer groups. J. I. Case Co., Educational Division, Racine, Wis.

FLOWERS AND WINTER CAN BE COMPANIONS

By W. J. JENKINS
Horticulture, 1951

When cold weather comes and the outside world becomes drab and colorless, why not bring spring into your home to cheer those wintry days? Plant a garden right inside your home. It isn't much work and the results will reward you many times for the effort.

There are many excellent plants to choose from for planting in your garden. Perhaps the hardiest of all is Aspisistra, the "Cast Iron Plant." Because it tolerates lack of sunshine, too much or too little water, extreme variations in temperature, and dry air, it makes an ideal plant for the beginner.

The palms provide some excellent varieties and thrive on about the same environment as the "Cast Iron Plant" does. Ferns, one of the most popular groups or home plants are insistant upon certain cultural conditions. These beautiful but finicky specimens demand a moist atmosphere and die quickly when exposed to gas fumes. They prefer soil containing up to fifty percent organic matter but will do fairly well in any good soil.

The geranium possesses in addition to its attractions, three characteristics which account for its popularity. This "Poor Man's Orchid" adapts itself to a wide range of cultural conditions, has few pests, and can be used successfully both indoors and out-of-doors.

A list of flowering house plants which omits begonias would be incomplete. Some are grown for the flowers, some for the attractive leaves and other for both blooms and foliage. Begonias require a little more leaf mold than most plants do. They should be protected from full sunlight in summer and exposed to it in winter. Water, if allowed to remain on the foliage, spoils the leaves of the plant.

When selecting a site for the new indoor garden, choose a sunny window in one of the cooler rooms of the house. Keep the atmosphere in the room as moist as it is possible to maintain it. This may be accomplished by putting evaporating pans on the stove or radiators; or if the house is heated by hot air install a humidifier on the furnace. Always keep in mind that most failures result from either too dry an atmosphere or too high a temperature. Other important environmental factors are water and light.

Selecting a good soil is very important to plant growth. Any medium weight soil fairly high in organic matter will be good. Add well rotted cow manure or pulverized sheep manure. Some people prefer to use steamed bone meal to provide plant food. It can be obtained in small quanities from any retail florist.

One of the nicer things about raising house plants is that they are, as a whole, easily propagated by cuttings. The commercial florist roots his cuttings in sand. Probably this is the best material for the home florist. A large flower pot or small box will make a good propagating bench. Place some coarse material in the bottom and cover it with about four inches of medium coarse sand. Keep the bed moist, not wet. Set the cuttings in trenches in the sand. Pack the sand firmly around the stems and water the cuttings immediately. It should take from four to six weeks for the cuttings to develop sufficient roots for planting out.

By careful selection of varieties, care in propagation and potting, destroying diseases and pests, and correct cultural practices, a person should be able to produce a very creditable indoor garden in a relatively short period of time.

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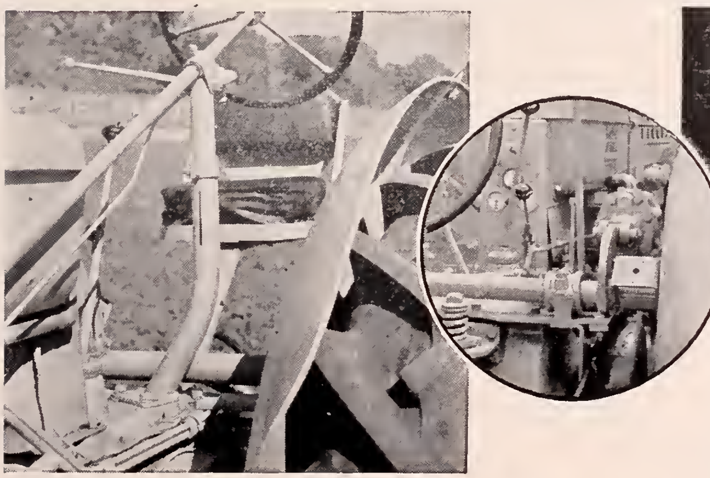

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MM supplies a new hydraulic control mechanism for raising or lowering and controlling farm implements. Uni-Matic controls permit preselection or changing of tool depth or height of cut. It has tested safety features for both operator and machines, and frees the operator's hands and feet for greater safety. Operation of the hydraulic mechanism is controlled by an easy-to-reach, simple-to-use, finger-tip lever. Uni-Matic Power provides "push-button" farming, reducing fatigue, labor, and drudgery. Available as optional equipment on MM's famous Z, U, R and G Visionlined Tractors.

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The same approved Quick-on—Quick-off and Attachor tools are available with the Z for easier, safer Visionlined row-crop work . . . Safer for the crops because all tools are in full view of the operator without awkward neck stretching to avoid running down rows . . . Safer operation with smooth, positive MM Uni-Matic Power.

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Other improved features of the new Z assure continued top performance with greater versatility, economy, and long-life dependability. Larger 11:38 rear tires give greater traction . . . radiator is strongly constructed with cast top and bottom tanks, steel side frames, and a core that can be easily removed.

The new Z steers with "new car" ease and simplicity. The steering wheel is adjustable for height. The new Z provides the *right* speed for the job with five forward speeds (2.4, 3.6, 4.6, 6.3, and 13.1 mph) and 2.2 mph in reverse. High-turbulence combustion engine with controlled cooling, full pressure lubrication and with a balanced 3-bearing crankshaft delivers smooth power. The new Z is strongly constructed throughout for maximum service year after year, and all parts are easier to inspect and to service when necessary.

MINNEAPOLIS-MOLINE
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THE LIGHTER SHADES OF COLLEGE LIFE

Probably the first thing you will notice about this month's "Lighter Shades" is the absence of a beautiful girl. We had a picture of lovely Ava Gardner all ready for publication when the Editor gave us the thumbs down treatment. It seems that the sex angle ain't what he wants. By slipping the slide rule a few times, we figure our readers have been cut about 98 percent. Sorry, Ava maybe next time.

Jacksonville seemed a great deal like Clemson New Year's Night. Students and professors seemed to be enjoying themselves to the fullest. Yea — everyone was loaded! Even "Frog" Ware seemed a little more philosophical than usual. He must have shaken hands with every guest in the Roosevelt Hotel at least twice.

Carolina Dances seem to be a little different than the usual Clemson "Drags". Their dances are actually attended by Carolina students, not by every beachbum and tramp that has the price of admission. The sooner "the boys in the front office" let the C.D.A. establish some sensible means of paying for our dances, the quicker a "clean up" can be started. You don't find such a bum crew at our concerts. Why should a Clemson dance have such an air of pollution?

Harvey Tiller and "Country Boy" Smith really made a weekend out of the Jacksonville affair. Tiller made the usual time with the gals while "Country" carved his name on every table at the Copper Kettle Nightclub. About ten Sunday morning, they realized they had come to Florida to see a football game.

Laurens Floyd's style was a little cramped down at Jacksonville by his father. Laurens used well over three tubes of toothpaste each day. Wonder why?

Sam McGregor and his ole' lady kept sticking their heads in the cocktail lounge of the Roosevelt Hotel. Did you finally have that snort, Sam?

"Fog" Booth wishes the general public to know that he (Fog)) escorted Miss Janis Walton to the various social functions while in Jacksonville. Are we supposed to forget all the nasty things Fog said about Converse or did he date Janis because Bob was lugging some other cutie around with him.

For some time now, girls have wondered just what "gal school" a Clemson man favors. We've proceeded to take a poll among one hundred of Clemson's most outstanding students. To our knowledge, this is the first time such a poll has been taken at Clemson College. Here are the results: 43 men voted Winthrop their favorite, 21 chose Converse, 15 picked Coker, 12 voted Limestone and 3 admitted they liked fillies from the Zoo. The rest of the votes were equally divided among Carolina, Brenau and Erkskine. Winthrop still holds the distinction of being first choice with Clemson men!!

About the biggest difference between Ted Husing and "Pop" Seddon is that Ted is actually good. "Pop" just thinks he is. Does the Radio Forum have another voice— try it!

This about concludes the gab for this month. If we've hurt anybody, about the most consoling thing we can say is—forget it. 'Hope to be back soon with a luscious picture of Ava Gardner for you to drool over.

QUESTIONS

A Said Mr. A, "They're good and mild, you see,"
Said Mr. A, "It's years and years for me."

B The sequence two, five, five when solved,
Shows a smiling D. A. with sins absolved.

C Working backward where this man dwells,
You make one change for fragrant smells.

ANSWERS WILL APPEAR IN THE NEXT ISSUE OF YOUR MAGAZINE

Chesterfield

RULES FOR CHESTERFIELD HUMOR MAGAZINE CONTEST

1. Identify the 3 subjects in back cover ad. All clues are in ad.
2. Submit answers on Chesterfield wrapper or reasonable facsimile to this publication office.
3. First ten correct answers win one carton of Chesterfield Cigarettes each.
4. Enter as many as you like, but one Chesterfield wrapper or facsimile must accompany each entry.
5. Contest closes midnight, one week after this issue's publication date. New contest next issue.
6. Answers and names of winners will appear in the next issue.
7. All answers become the property of Chesterfield.
8. Decision of judges will be final.

LAST MONTH'S ANSWERS & WINNERS

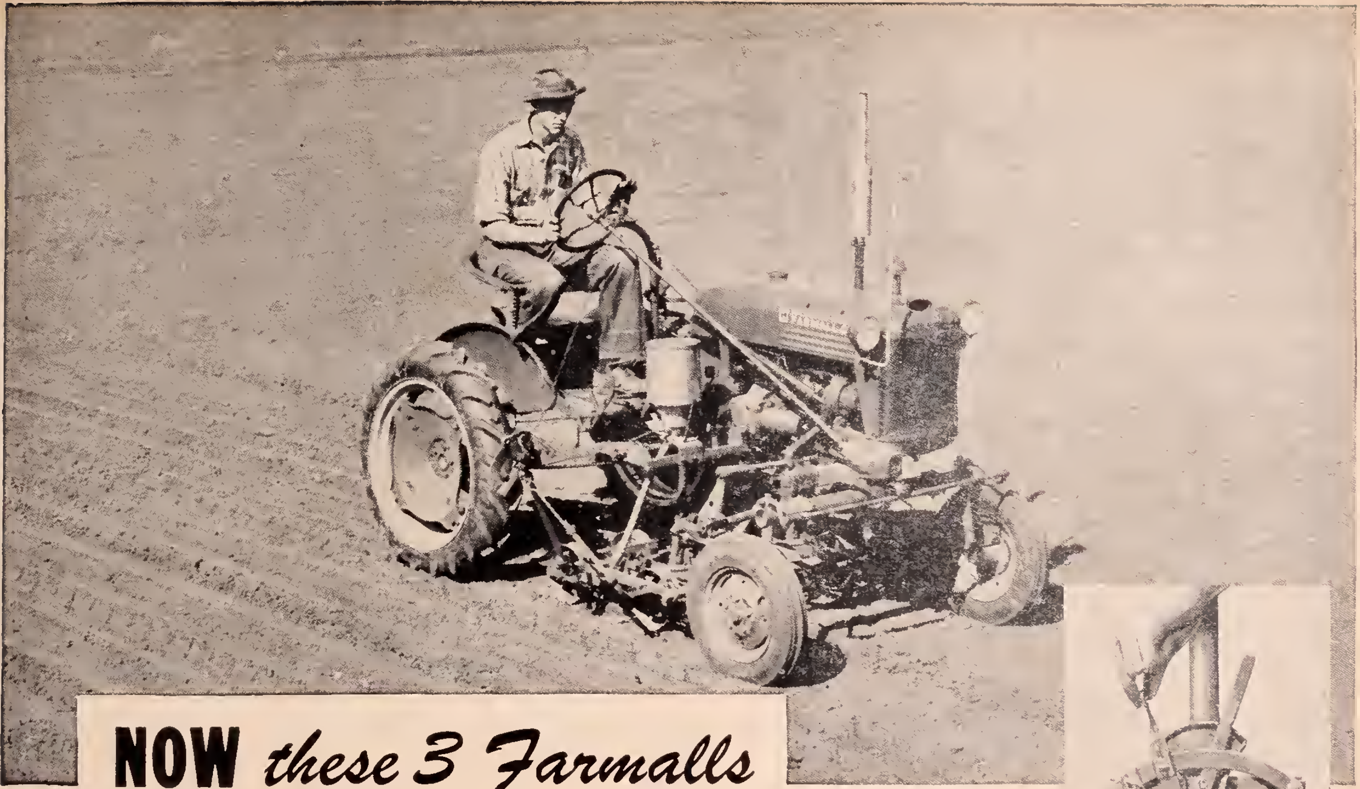
A The field of red is the red scarf which Tyrone Power is wearing. On it one can recognize the mask of tragedy, the classic mask of Thespis. So the answer is TYRONE POWER'S SCARF.

B The shamrock and the blarney stone are symbols of "THE LUCK OF THE IRISH."

C Ten to the sixth (power) equals 1,000,000 (one million). Ten to the zero equals 1 (one). ANSWER: Chesterfields satisfy millions, they'll satisfy you.

WINNERS...

All you fellows now have another chance to win some free Chesterfields. Don't let your buddies get ahead of you. Just follow the simple rules and turn them in to room 3-228 or room 8-230. Remember that the first ten correct answers win a carton of Chesterfields.



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For CHESTERFIELD CONTEST See Page 24

The Agrarian

OFFICIAL STUDENT PUBLICATION

The Clemson Agricultural College ★ School of Agriculture

MARCH, 1949 CLEMSON, S. C.

Prove CAMEL MILDNESS *for Yourself!*

In a recent 30-day test of hundreds of Camel smokers, noted throat specialists reported NOT ONE SINGLE CASE OF THROAT IRRITATION due to smoking CAMELS!

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Money-Back Guarantee!

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The Agrarian

OFFICIAL STUDENT PUBLICATION

VOLUME 8 THE CLEMSON AGRICULTURAL COLLEGE Number 3

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COVER—A South Carolina girl landing a recruit for the frying pan; proof positive of the value of farm ponds. Numerous Clemson students have acquired acute cases of fishing fever (or is it spring fever) from a large copy of this picture adorning the classroom of Dr. G. H. Collings.

Photo—Courtesy of Soil Conservation Service.

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A look at the Champion Ground Grip tread will show you why this tire outpulls any other tractor tire. Your nearby Firestone Dealer or Store will be glad to put a set of Firestone Champion Ground Grips on your tractor and let you prove them to your own satisfaction.

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1 USE FIRESTONE CHAMPION TIRES
2 USE FIRESTONE HYDRO-FLATION
3 USE ONLY 12 LBS. PRESSURE

Farm Ponds plus *Fertilizer* equals *Fun* plus *Fish*

By S. P. YOUNG
Agricultural Engineering 1950

One acre of water in a properly built fish pond will yield 150 to 450 pounds of pan-size fish each year. These fish can be raised for only a few cents a pound after the initial cost of the dam has been paid. This does not mean that any haphazardly - constructed pond on ill-suited soil will produce a good yield of fish or be of any value to the farmer.

Location of the spillway, texture of soil, desired depth, and slope of the land are the major factors which one should consider in determining the proper location for the proposed fish pond.

A natural spillway which will divert the excess water around the end of the dam should be used wherever possible. One of the most desirable locations for a natural spillway is the end of a valley where the sides converge; this will give the advantage of construction without disturbing the soil. If no natural spillway exists, one or more should be built of such size as to insure runoff without overflowing the top of the dam. Spillways should be made wider than the estimated necessary width to allow for safety in case of a severe storm. Some form of vegetation should be maintained in the spillways to prevent erosion, and no spillway should be cut into porous or erodible material.

Some farmers are having considerable trouble with ponds which will not hold water and are giving very unsatisfactory results. Before going too far toward building a pond, one should check the soil conditions at the proposed site with a soil auger at least 4 feet long. The floor of the pond should have a layer of water-holding material at least 2 feet thick to reduce seepage to a minimum. Remove all trees, brush, logs, and other debris from the pond area: clear the dam site of all topsoil, stumps, and other organic matter. Fill material for the dam should contain at least 20 percent clay by weight, and the dam should be built with side slopes of 2 to 1. In cases where fill material contains less than 20 percent clay by weight, a clay core extending to the high water line is necessary and a side slope of 3 to 1 on the "wet" side is required. In no case should a pond be constructed on land which has less than 2 feet of impervious material on the pond floor; a layer this thick should be left if fill material for the dam is taken from the floor of the pond.

A small valley with steep sides and gently sloping floor is an excellent site for a farm pond. The steep sides aid in controlling water weeds, and the gently sloping floor insures a greater area with a smaller dam. In order to have the dam as short as possible in proportion to the total shore line, build it where the sides of the valley converge if this location is practical.

Depths of from 6 to 10 feet give best results in ponds which are to be used for fishing. All brush, trees, and other growth should be cleared at least 15 feet from the edge, and the strip thus formed should be kept permanently sodded. The depth should not be less than 2 feet in any part of the pond. All shallow edges should be deepened to help in controlling waterweeds and mosquitoes, store a greater volume of water, keep livestock from muddying and destroying spawning beds, and increase the areas of good fishing from the banks.

U. S. Department of Agriculture recommendations for the correct amount of fish per surface acre should be followed in stocking a pond. Over-stocking is one of the greatest mistakes made by pond owners. This results in a large number of smaller fish than would otherwise be produced and makes for poor fishing.

In natural ponds where no fertilizer is added, 200 pounds of fish per acre is generally the maximum which can be supported. However, this number can be increased to as much as 600 pounds per acre by putting ordinary commercial fertilizer into these ponds. Usual yearly fertilizer requirements for ponds is around 1200 pounds of an 8-8-4 analysis per acre, depending on the requirements of the pond. Besides increasing the food for fish, fertilizer added to a pond also controls submerged pond weeds and makes fishing more successful.

Over-fishing a pond which has been properly stocked is impossible. If only a small amount of the fish are removed, there will be little growth and the pond will be filled with more fish of a smaller size.

Some states have laws which govern the building of a pond, stocking with fish, and harvesting the fish in it. The legality of these operations shouuld be looked into before undertaking the construction of a farm fish pond.

GOOD VARIETY SELECTION — SUCCESS OR FAILURE FOR COTTON FARMER

Experiment Station Conducts Variety Tests to Assist Farmers in Picking Well-Suited Varieties

By CARLTON HERRING
Agronomy 1950

Long ago, before the appearance of so many diseases and insects, the cotton farmer had little trouble in deciding what variety of cotton to plant. The variety didn't make an awful lot of difference to him. Of course, cotton, like most other crops, had leading varieties and the early progressive farmer tried to select a high yielding variety, although his personal preference in most cases probably determined the variety he planted.

The story is quite different now in our age of modern farming. Every year about this time, the cotton farmer is faced with a very important question: "What variety of cotton should I plant this year?" This question is an important one and should be given careful consideration. With new diseases and insects occuring almost every year, the selection of a variety that will give profitable returns may become a complicated process.

The difference between a right and a wrong selection can mean the difference between success or failure for that year's cotton crop. Not only can it mean success or failure for that particular year, but also in years to come. Cotton is a very important crop in the South and a good crop does much toward making a prosperous and happy people. In a good cotton harvest farmers see chances increased for education of their children, for home conveniences for their families, for new equipment to make their acres more productive—all in all, for opportunities to make their lives more abundant.

In answering the question of variety selection, the cotton farmer has several things to consider. Among these, he has to choose a variety which is wilt resistant and well suited to his soil and climatic conditions. It is estimated that wilt, a widespread disease in the United States, especially in the Cotton Belt, cost American growers nearly half a million bales per year, or about 5 percent of the crop. During the past two or three decades much reseach has been done toward developing disease resistant varieties. The experiment stations and the extension service are the cotton farmers chief source of information about these different varieties.

Among the many tests and experiments which are conducted at the experiment stations are variety tests for cotton. These tests are conducted annually and the conditions under which the tests were conducted are usually stated on the data sheet. From the Pee Dee Experiment Station's results of 1948, in which 37 varieties were tested, Coker's 100 Wilt 47-6 was the leading variety on the basis of total monetary value per acre. This variety produced 832 pounds of lint and 1586 pounds of seed per acre, a total of 2418 pounds of seed cotton per acre, which gave a total value of $429.43 per acre. The percentage of lint was 34.4 and the length of the fiber was 1 7/32 inches, which brought a price of $45.42 a hundred pounds. Although Coker's 100 Wilt 47-236-74 with 2526 pounds of seed cotton lead, in total pounds of seed cotton per acre, Coker's Wilt 47-6 lead in total value per acre. In determining these results the lint percentage is the average of 4 representative samples of each variety. The staple values are based on Augusta spot market middling basis 15/16 at 31.32 cents as of October 1, 1948. The seed are valued at $65.00 per ton and the staple length is the average of 4 samples graded and stapled by the South Carolina Department of Agriculture. Each variety was replicated 4 times in 4 row plots and yield records were obtained from two inside rows of each plot.

J. Harvey Neely, S. C. farmer, exhibits results of good variety selection, with a stalk from his prize-winning field.

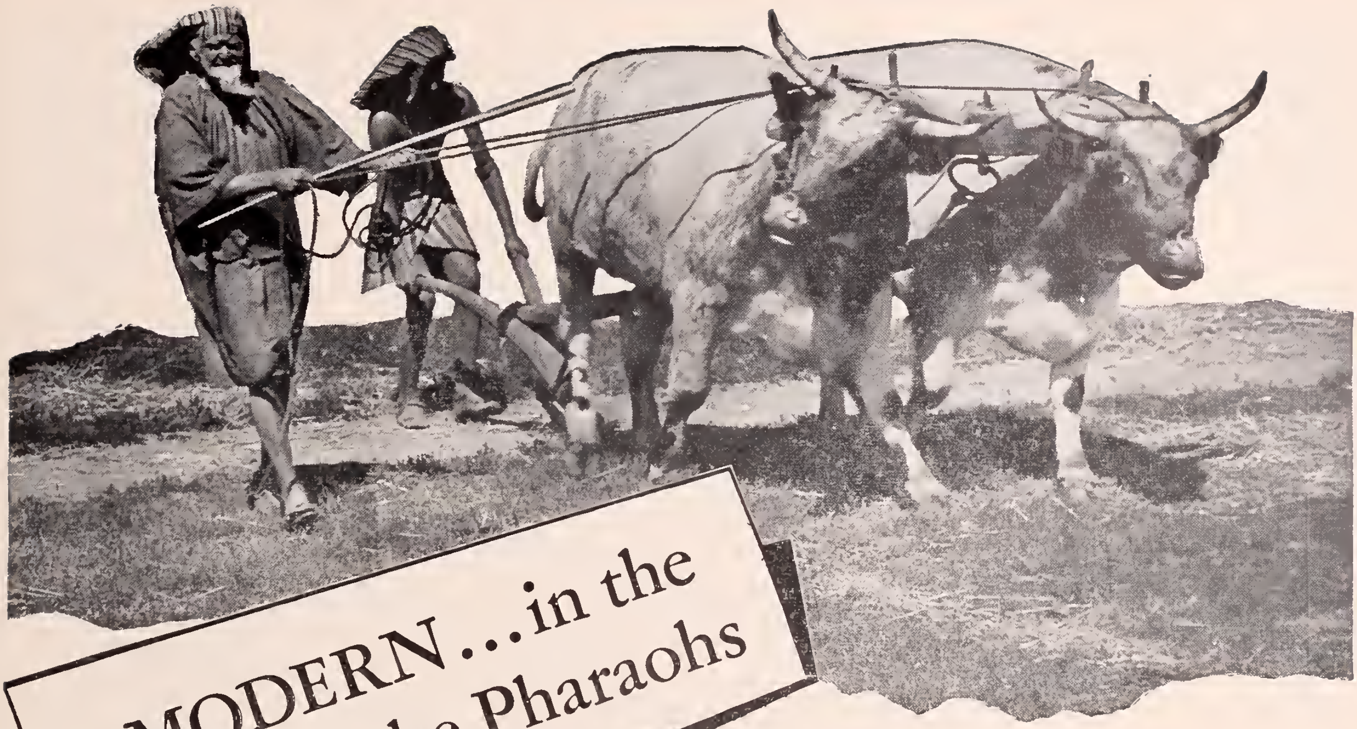
According to The National Cotton Council of America, the marketing of cotton by varieties is a coming thing. Many spinners are becoming aware of the meaning of variety to their operations; however, a great deal more work will have to be done by all segments of the raw cotton industry before marketing by varieties would be adopted on a large scale. The spinning quality of cotton is very definitely associated with the variety, although it is affected by other factors such as location, soil and weather conditions.

If cotton farmers in the South are to maintain cotton as an important cash crop on a profitable basis, it will be necessary for them to increase yields per acre, lower cost where possible, and produce stronger fiber of the best possible spinning quality.

In order that the high percentage of one inch and longer staple length be maintained, it is necessary that farmers continue to plant the best variety, not allow their planting seed to become mixed, and keep their production not more than the third year from breeder seed.

Cotton fits into the Southern farmers program. It fits because it produces feed—cottonseed meal and

(continued on page twenty-six)



MODERN ... in the Days of the Pharaohs

Here is an ancient Egyptian plow, in replica, being pulled by one of the very few trained ox-teams to be found today. This same two-ox team was the pattern of farm power from the days of the Pharaohs to those of our own forefathers. Substitution of horses made the team a little faster, but no stronger. The plow was greatly improved, but remained similar in appearance.

Then came the American nation with new freedom, new enterprise, new invention. In a single century came plows with steel moldboards, wheels, multiple bottoms. Animal power was first supplemented by steam engines, finally supplanted by gas tractors. A man's capacity to plow and to produce has been multiplied tenfold.

In all those swift advances, Case played a leading part. As you look toward your farming career, remember that for 106 years Case has been creating ever-better machines, to make farm work easier and more productive, farming more prosperous. Look to Case machines to help you get what counts today—high yield *per man.*

See "Pageant of Progress" as thousands saw it daily for a week during the Wisconsin Centennial Exposition at Milwaukee last summer. Filmed then, this Case pageant of quaint costumes, strange skills, ancient tools and modern machines has been made into a full-color sound movie. Besides being shown by Case dealers, it will be available for meetings sponsored by educational and farmer groups. Write now for reservation of future date desired. Address our nearest branch house. J. I. Case Co., Racine, Wis.

CASE

Case One-Way disk plow with Model "SC" tractor

WATCH OUT, SPORT!
DON'T GET CAUGHT WITH YOUR PATENTS DOWN

(Courtesy of New Jersey Agricultural Experiment Station)

WHITE HALE PEACH
Holder of U. S. Plant Patent No. 31, Issued 1932

Opportunity for Breeders— Plants with Valuable Characteristics Patentable for 17 Years

By W. J. JENKINS,
Horticulture, 1951

The passing of the Plant Patent Act in 1930 threw out a challenge to amateurs and professionals growers as well. Innumerable men have made large sums of money just because they had the foresight to patent their product.

A fourteen year old Texas boy accidentally produced a thornless rose. He succeeded in patenting it and sold his rights for $250.

The White Hale peach pictured above was patented in 1932 by Prof. Maurice A. Blake of the New Jersey Agricultural Experiment Station. This variety grew as an open pollinated seedling of the J. H. Hale. Firm white flesh, large fruit size and vigorous tree growth are among the characteristics which helped secure a patent on this peach. It ripens about the time of the Elberta and J. H. Hale.

This peach and the Garden State nectarine were patented by the New Jersey Experiment Station as a means of testing the effectiveness of plant patents on controlling the distribution and testing of new varieties. These particular patents were never intended to be a source of royalty for any party, and expiration of the White Hale patent this fall will place the propagation and distribution of this peach in the public domain.

More patents have been issued on peaches than any other plant except the rose, and three out of every four are sports of chance seedlings. Only recently Paul Stark, a prominent nurseryman, paid $10,000 for rights to an Elberta peach which consistently ripens three weeks earlier than do the July Elbertas. Today many nurserymen are seeking and finding fruits that lengthen the marketing or canning season, or serve better for freezing or dehydrating.

The patent bill created a great deal of interest in the horticultural world. The legislative committee of the American Association of Nurseryman and other influential workers were responsible for the passage of this bill which gives the discoverer or inventor the right to be the sole proprietor of the new plant and all cuttings from it for seventeen years and it permits the originator to license growers to propagate and sell the cuttings, or grafted trees, and on every sale he can collect a royalty.

A patent can be applied for on any distinct and new variety which may be asexually propagated, except vegetable crops, seed crops, or plants propagated by tubers. However to have a patent granted a plant must show distinct variations from existing varieties. If it does not, the patent is usually refused. In order for a variety of plant to be distinct it is not necessary that it be a variety of a new species; it may be patented if it is a new and distinct variety of an existing species.

The characteristics that may distinguish a new variety would include those of growth habit, immunity from disease, resistance to cold, drought, heat, wind, or soil conditions; color of flowers, leaf, fruits, or stems; flavor, productivity, and ease of asexual reproduction. The difference will necessarily be one of degree.

The act does not give patents to new varieties propagated by seed, no matter what percentage of the seedlings come true. This excludes vegetables, except for one on a mushroom. The new variety must have been propagated asexually prior to the application for patent. Theoretically, under laboratory conditions, it is probable that all plants can be asexually reproduced but under most conditions a patent will not be applied for unless the plant can be reproduced on a commercial scale.

The applicant must take an oath that he believes himself to be the original discoverer of the variety of

(continued on page twenty-two)

PINT-SIZED SHADOW

Many a farmer has a pint-sized shadow that tags him all over the farm . . . shrilly repeats his pet words . . . dresses like a tiny twin. Like most little boys, he can't wait to grow up. The thing he wants most in the world is to be a farmer just like his dad.

Old-fashioned farming, with its never ending toil, often shattered this childhood dream —sent the boy off to the city to seek his fortune. Today, it's easier to keep him on the farm. Better crops and improved farming practices have boosted yields and farming profits. Modern John Deere power equipment has taken over much of the muscle work, and chopped hours from the old dawn-to-dusk work day.

No wonder more and more farm boys are staying with the land—realizing a childhood ambition to follow in their fathers' footsteps. This is a good sign. These young farmers will hasten the fuller mechanization of our agriculture, pioneer new farming practices, and bolster vital food production.

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STATE FINANCES --WHERE THE MONEY COMES FROM

By W. P. ROBERTS
Agricultural Economics, 1949

Some contend that the quickest way to a man's heart is not through his stomach, as we often hear, but by touching his pocketbook. This is the point of view which provokes such an article as this in hopes of presenting some interesting facts about our State's almighty dollar.

Government in South Carolina is Big Business. The fact that Departmental Budget Requests for 1949-50 exceed 123 million dollars is enough to convince most of us that our state government is a huge and complex organization. Those who support the many departments of state and their personnel with their dollars (and all of us do) have a real and direct interest in the management and personnel of these departments. This being the case then it is our duty to protect such an investment on our part, and insure its success as free individuals.

There is the assurance that the revenue system, as one vital part of government, is not particularly bad. It is as good, if not measurably better, than that of a large number of states in the nation. It reaches a large proportion of citizens of the state, it is relatively adaptable to changing economic conditions, it conforms in the main to the "ability to pay" principle, and, if the receipts were efficiently and equitably distributed, would provide reasonably adequate funds for the support of the several activities of state government.

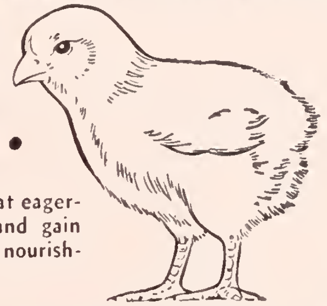
Economic conditions and a changing attitude toward the functions of government have caused a phenomenal increase in state expenditures of nearly 2300 percent during the past three decades. Three major causes are responsible for this great increase in expenses. The first is the establishment of new departments, commissions, bureaus, and institutions for the purpose of performing new functions. The second major cause has been the natural growth and expansion of functions and activities recognized as obligations of the state. For example, the increase in enrollment at Winthrop College was from 1,208 to 1616 during this thirty year period; at Clemson from 1,106 to 3,200, at The Citadel from 350 to 1900, (approx.) and at the University from 508 to 4000.

The third major factor in state expenditures has been the assumption of financial responsibility by the state for activities which were formerly financed by counties and districts. Principal among these may be mentioned: state financing of a nine months' school term, support of farm and home demonstration agents on a statewide basis, all sorts of grants-in-aid to local governments, more roads in the state highway system, and many others. Grants-in-aid alone equal the total cost of the state government of just a few years ago.

The prospects for reducing the expenditures of state government are not encouraging. Nor is there any substantial evidence to indicate that the state is providing more than a minimum of services now generally considered as necessary and desirable. As a matter of fact, South Carolina suffers by comparison with other states in the amount and proportion of its expenditures for certain essential functions, for example, education. This being the case a more equitable and logical distribution of the funds available would appear to be in order.

(continued on page eleven)

today's chick...



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The stalks in this picture were cut in a row of WOOD'S **V-125** Hybrid White Dent, a superior pure white milling corn for the Upper South, or early corn in the Deep South. The 12-inch ears are closely packed with deep, sound grains on small cobs.

For the Coastal Section where weevil damage is a problem, WOOD'S **S-360** was developed with flinty grain and long tight shucks to resist weevil damage.

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STATE FINANCES

(continued from page nine)

The touch on our pocketbook, which accounts for that important matter of revenue, is developing into something more than a touch. Since the expenditure dollar must come from somewhere—and all of us know where some of it comes from— some of the current sources might well be compared. The revenue collected by South Carolina from taxes, licenses, fees, and miscellaneous charges during the fiscal year ending December 31, 1919 amounted to approximately $6,250,000. Twenty years later the collected revenue amounted to $30,000,000. A more recent illustration is the fact that fifty million more dollars were collected during the fiscal year ending June 1948 than during the year 1939.

Not only have there been tremendous increases in total receipts, but equally significant changes in sources of revenue. In 1919, for example, the general property tax yielded 77.3% of the total revenue for that year. In 1939 this same tax produced but little more than $1,000,000 or 3.7% of the total. Today general property is not taxed at all for state purposes. The question immediately arises—what source or sources has the state tapped to replace this formerly important revenue producer? One of the answers can be found in the so-called "gas tax", interesting and unique in that, originally, at any rate, it was enacted as a privilege tax on **dealers** in gasoline rather than on the **users** of gasoline. With the exception of the depression year 1932, the amount of revenue from this source has steadily increased from year to year. The tax now constitutes the second largest single source of revenue collected by the state, and is now producing nearly two million dollars a month or about 26 percent of the total taxes collected by the state.

Other important sources of state revenue which were non-existent in 1919 include taxes and licenses on alcoholic beverages and taxes on personal and corporate incomes. Receipts from the former source totaled over $18 million for the year ending June 30, 1948, or approximately 23% of all state tax revenues. Income taxes, which in 1948 brought 32% of the total taxes for that year, led all other sources and provided approximately $26 million of the state's total revenues. Some of the lesser important sources are the Business License which includes tobacco products, etc., and Soft Drinks Tax.

The writer hopes that in presenting such an article some interest will be created within each of us which will cause us to be concerned about this vital business of state government. Defects in our present government as a result of failure to adopt improved practices, lack of budgetary control, and "politics" can be corrected.

This article will be followed in a later publication by another on "Where the Money Goes".

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GREAT RIVERS OF MILK, CLEMSON GRADS AND PROSPERITY FLOOD ORANGEBURG COUNTY

By J. E. CUSHMAN,
Dairying, 1951

Orangeburg County, S. C., located in the lower part of our state along the coast, is holding its own as one of the leading agricultural counties in the state. The people in this county have been working together in making their county grow. Much of the credit for this steady advancement is given to Clemson College. There are more Clemson graduates actively occupied in Orangeburg than in any other South Carolina county, and there are more Clemson graduates in this county than there are from any other school.

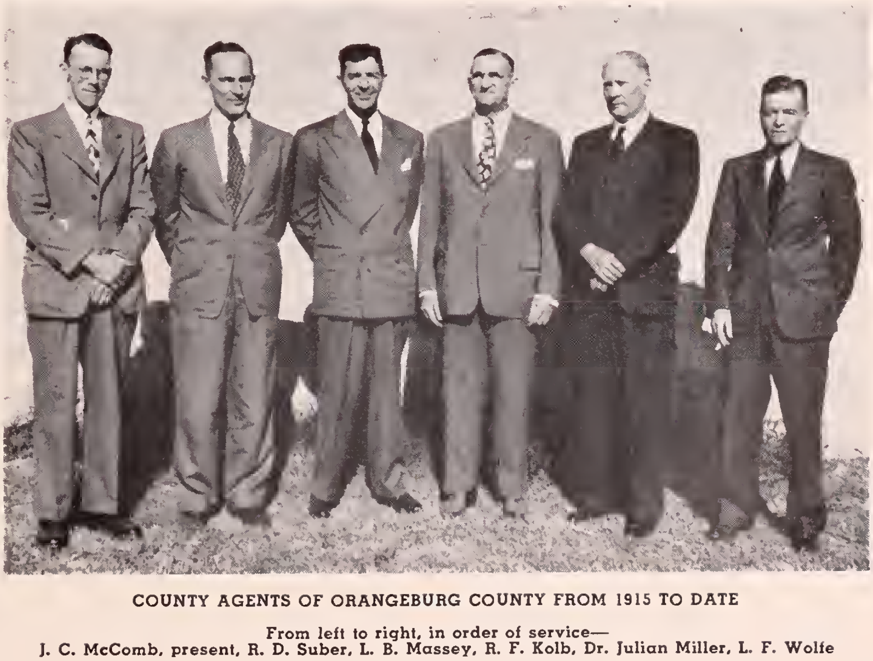
Statistics show us that Orangeburg now has the lead in the state in cotton production, pecan production, sweet potato production for market, dairy products, meat products (hogs and cows,) total corn, and total small grains.

Their dairy industry is the largest in the state and has risen from a $200,000 industry in 1940 to its approximately one million dollar business today. There are approximately 165 Grade A milk producers in Orangeburg county supplying the milk needs of the city of Orangeburg, and most of the needs of Charleston, plus the surrounding county and territory. Dairy products constitute the largest gross agricultural products income for the county.

Like many of the more progressive counties in S. C., Orangeburg has a complete artificial breeding program in operation. They employ a full time technician who has at his disposal a modern completely equipped laboratory in the Agricultural Building at Orangeburg.

At the present, Orangeburg has the only full time county DHIA (Dairy Herd Improvement Association) in the state. This organization is made up of a group of dairy farmers who employ milk testing and dairy farm operation experts. These men also furnish the farmer who seeks their assistance a monthly report of their farm financial standing concerning their dairy operations and offer valuable advice to the farmers on the latest practical methods of making the dairy farmer's operations more profitable and labor saving. These milk testers make records on each cow in the herd on the total amount of butterfat and milk she produces and the kind and amount of feed consumed. This test is made once a month on each cow until a 12-month production record can be made up from these tests. A fee is paid by the farmers for this service based on the number of cows in the herd. In discussing the dairy industry of Orangeburg county, C. G. Cushman, Leader of the Dairy Extension Department at Clemson, said, "Orangeburg County's leadership in the development of a substantial dairy industry is due to the adaptability of her soils to the production of feeds suitable to dairy cattle nutrition, to a livestock minded people and to the excellent market for milk in Charleston, the state's largest city".

One of the most important reasons for Orangeburg's prosperity is the cooperation of the community-spirited farm citizens. A good example of this is one of the oldest and most successful bargaining cooperatives in the Southeast located in Orangeburg County. It is the Coastal Milk Produces, Inc. All grade A milk producers in the county which supply milk to milk plants in Charleston are members of this cooperative. It has no one plant for pasteurizing milk, but sells to the various plants located in the county and the large Charleston market. These many facts and figures assure us of the rising generation that farming in South Carolina still leads as a prospering enterprise. It also shows us what can be done when hard work is made the password with the "Southern Agricultural Scientists"; for agriculture has become known as one of the most complex and technical vocations known to man. So, to J. C. McComb, Orangeburg County Agent, a Clemson graduate of 1930, and his fine group of farm enthusiasts, we take off our hats and salute you as the "Leader and Example" of our native South Carolina.



COUNTY AGENTS OF ORANGEBURG COUNTY FROM 1915 TO DATE

From left to right, in order of service—
J. C. McComb, present, R. D. Suber, L. B. Massey, R. F. Kolb, Dr. Julian Miller, L. F. Wolfe

BETWEEN THE

Aberdeen-Angus Breeders Association Banquet

The South Carolina Aberdeen-Angus Breeders Association held its annual banquet at the Wade-Hampton Hotel in Columbia on March 6. This was followed by the show and sale on March 7th. The Angus shown were an improvement over the cattle that had been shown and sold in previous years. There has also been a considerable increase in the number of members of this organization. Professors L. V. Starkey and J. R. Cook attended the show and were impressed by the animals shown.

It is interesting to note that J. L. Herron from Starr, an Animal Husbandry graduate, showed the Grand Champion bull and R. L. Jones, another Animal Husbandry graduate from Mt. Pleasant Plantation, Andrews, S. C., showed the Grand Champion female. Many of the Animal Husbandry graduates are going back to the farm and are playing an important part in the livestock development of South Carolina.

W. J. Barker Elected to Forestry Office

During a recent meeting of the Appalachian Section of the Society of American Forestry, Mr. Barker, in charge of the forestry section of the Extension Service at Clemson, was elected Vice President. Mr. Barker held the position as a member of the Executive Committee in 1944 and Secretary-Treasurer during 1945. The membership during this time grew from 175 to 433.

Mr. Barker is also a member of the Section Committee on Licensing Foresters, and prior to this was chairman of the Committee of Private Forestry. A report on this subject was printed in a booklet "A Report of Private Forestry in the Carolinas."

"Doc" Roberts Elected to Blue Key

W. P. "Doc" Roberts, president of the junior class at Clemson and Agriculture Economics Departmental Editor, was recently elected to the Blue Key. "Doc" from Lugoff, S. C., is also vice president of the Clemson YMCA.

Chicken-of-Tomorrow Contest

P. H. Gooding, leader of Clemson Poultry Extension Work, has announced that the Chicken-of-tomorrow contest will be held at Clemson June 6, 1949. To compete in this contest, the chickens must have been hatched during the week of March 14.

The purpose of this contest is to breed a chicken that will grow faster and produce more meat, thereby bringing increasing satisfaction to poultry consumers in the same method that scientific breeding has developed more economical cows and hogs.

The $1,000 award to the producer of the prize specimen is given by the A.&P. Food Stores. Anyone is eligible to enter this contest if they have a minimum of 100 straight-run chickens or 50 sexed cockerels.

Entry blanks may be secured from Mr. Gooding at Clemson.

J. M. Eleazer Elected Chiarman of Ag Editors

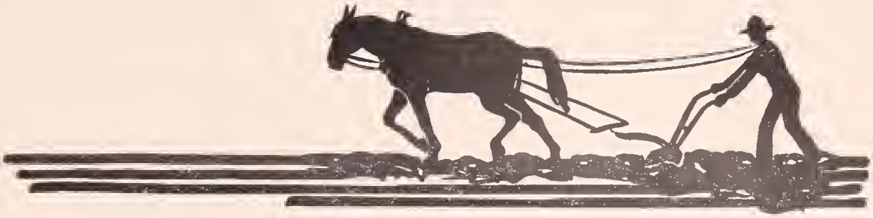
At a recent meeting of the Association of Southern Agriculture Workers in Baton Rouge, La., Mr. J. M. Eleazer was elected Chairman of the Agriculture Editors. He was an agronomy major while at Clemson and at present is Extension Information Specialist at Clemson.

Dr. R. F. Poole, president of Clemson College, is also president of the Association of Southern Workers. President Poole urged all extension workers and the teaching staff to cooperate and form a strong program to encourage more efficient agriculture in the South.

Professor Goodale on Borden Committee

Recently Mr. B. E. Goodale, professor of Dairying at Clemson, was chosen Chairman of the Borden's Award Committee in Dairy Manufacturing.

Professor Goodale with two other men in Dairy Manufacturing from other agricultural colleges is to choose the winner of this $1,000 award. The winner will be an outstanding dairy teacher and research worker.

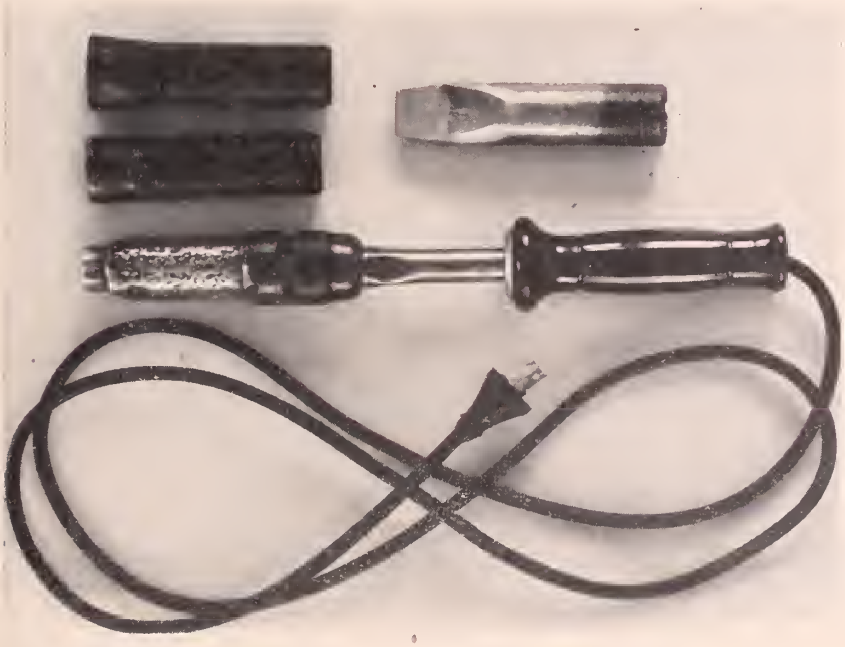


FURROWS

CALVES DEHORNED WITH ELECTRICITY

By HENRY SIMONS, Experiment Station Editor

Did you ever think that you'd be able to use a soldering iron to dehorn a young calf? Strange as it may seem, the Dairy Department of the South Carolina Experiment Station has been able to do just that, using an experimental iron with a specially modified head or tip.



"The new method has been so successful experimentally that for the past six months all new calves in our Clemson dairy herd have been electrically dehorned", Prof. J. P. LaMaster, head of the Dairy Department reveals.

Only about two and a half minutes are required to complete the dehorning operation by the electrical method. However, thirteen and a half minutes are required for the same operation when using liquid caustic and 19 minutes with caustic stick. The electrical dehorning method is not only faster than the caustic but is less painful to the animal and completely bloodless.

The experimental dehorner consists of a conventional soldering iron with a special head or tip. Placing the hot iron in contact with the horn producing cells located at the base of the hornbutton kills the cells and prevents the horn from developing. The iron is placed in contact with the hornbutton and slowly rotated with a circular motion for about ten seconds. If the branded circular area is a bright copper color, the work is then complete. If not, another application of the electric dehorner for a few additional seconds completes the job.

Based on this information, an electrical dehorner is now being manufactured by a national electrical firm and will soon be available in South Carolina. This device consists of an electric soldering iron with three interchangeable heads or tips. One is a small tip for dehorning calves up to one month of age, another a medium-sized head for calves one to two months old, and the third a large head for calves up to three months of age. A conventional soldering iron tip for general farm use is also included in the outfit.

THREE HYBRID CORN VARIETIES ARE RECOMMENDED FOR SOUTH CAROLINA

The following hybrid corn varieties have been tested by the Experiment Station and are recommended for South Carolina conditions: Dixie 17 (white) for Piedmont; N. C. 27 (yellow) for Piedmont and Coastal Plain; and Dixie 18 (yellow) for Coastal Plain. These hybrids possess high-yielding ability, good shuck coverage, strength of stalk and are adapted to the areas as listed. Farmers should buy only certified hybrid corn seed.

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PENDLETON, SOUTH CAROLINA

Agrarian Philosophy

By

The Editor

Mr. How and his cousins, the Five W's — Who, What, When, Where and Why —are the investigators by which any product of human endeavor may be put to the critical test of practicability and usefulness. A test of this nature is good inventory practice for any form of enterprise.

Let's put **The Agrarian** to the test; not so much with the idea of justifying its existence as with the hope that it may bring some understanding to those on the campus and elsewhere who seem to feel that extra-curricula activities such as this are merely instruments whereby the "eager-beaver" boys let off steam; that time and effort expended on such organizations is beyond the realm of education and therefore wasted; that an education constitutes only that which is strictly required.

The first four W's are satisfied by simply stating — "**The Agrarian** is the official student publication of the Clemson College School of Agriculture, published four times a year by interested agricultural students."

HOW brings forth the ever present problem of financing the publication and distribution of this magazine. The Agrarian is self-supporting in that all circulation is free and no financial aid whatsoever is received from the school. In this respect, we are somewhat unique among student agricultural magazines of the nation. Our advertisers are our sole means of support; their patronage our lifeblood.

WHY **The Agrarian**? Is it of any practical use? Does it perform and service?

A publication should perform three basic services to be considered worthwhile — a service to its readers, its advertisers, and its staff.

This is a semi-technical agricultural magazine; as such it cannot lay claim to "general reader interest." However, our circulation list attempts to put **The Agrarian** in the hands of readers to whom it may be of some service — farmers, county agents, 4-H and Future Farmer groups, Granges, and others instrumental in the program of a better agriculture for South Carolina.

Layout and editing errors, cumbersome sentences and dull writing can be found in this magazine. We don't pretend to be professional journalists; but we try our best in the belief that sincere efforts courts tolerance. It's a cinch the professional best conquered clumsiness through experience.

If space permitted, we would take issue on the point that advertising in publications of this type is merely a good will measure. On that point alone, however, we would like to point out that a lot of good will can be built among some 3,200 Clemson students, 1,500 of the states' more progressive farmers, and numerous other readers.

We constantly strive to give efficient, profitable and satisfactory service to our advertisers — who serve **The Agrarian** by letting it serve them. Their patronage is appreciated; their comments on our service solicited.

Article and feature writing, keeping the books and paying the bills, ad soliciting and writing, circulation and mailing, editing and makeup — these and other jobs staff members do of their own will on their own time. Why? We think it's good training for the **years** that follow **"sheepskin day."**

The ability of confident self-expression, gained through informative writing; the acceptance of trust and responsibility, brought about through team-work; the "at-ease" of making business and social contacts — these and other experiences gained may not help us get a better job upon graduation than the campus "Do-little"; but it's a safe bet they won't do us any harm after we get the job. Wanta' bet, Do-little?

What am I selling? Gilt edged bonds that pay triple dividends — an interest in constructive things; other than those "required."

L. C. MARTIN DRUG COMPANY

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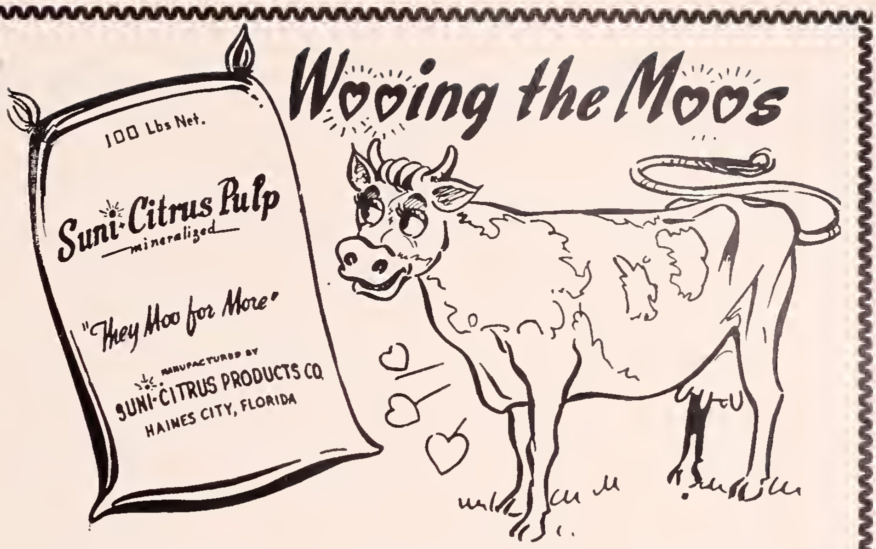
6. IT contains 1520 pounds of digestible feed per ton — therefore a cheap source of digestible nutrients.

Wooing the Moos



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Future Ag Teachers Teach -- While Being Taught

In order to train the prospective Vocational Agriculture Teachers of South Carolina, there has been installed at Clemson a program in teacher training which has proven to be very effective in training agriculture teachers for many years. This program consists of the principles and methods of teaching as well as the practical experience of actually teaching under the supervision of experienced well trained teacher trainers and the various agriculture teachers of the local high schools in which we work.

A student must have several preparatory courses before he is permitted to enroll in practice teaching. These courses serve as an orientation on the various phases of the curriculum, how it is set up, and what is expected and required of each student who elects to major in Vocational Agriculture Education.

Besides these courses in education everyone is required to take courses in English, chemistry, mathematics, agronomy, animal husbandry, dairying, agriculture engineering, botany, horticulture, bacteriology, and agriculture economics. After securing a technical knowledge of these subjects, the student is permitted to enroll in practice teaching.

The practice teaching program is supervised by Professors J. B. Monroe, F. E. Kirkley, W. C. Bowen, B. H. Stribling, and Dr. T. A. White. These teacher trainers set up a program of work with the cooperation of the agriculture teachers at Keowee, Central, Pendleton, and Seneca High Schools.

These teachers are very helpful and cooperative; their many suggestions, patience, and other forms of supervision are of immense value to the students.

There are two main phases in practice teaching at Clemson. Namely, these are: (1) all day training dealing with high school boys, their problems, supervised programs; and teaching the class, (2) evening class training consisting of working with adult farmers, visiting their farms, and leading discussions at the night meetings.

The Author and Ed Hucks, Teacher Trainees, Discuss Some of Their Problems with Prof. J. B. Monroe

By FRANK M. HART
Vocational Agricultural Ed. 1949

Let's look at the student who is working with the adult farmers. He is assigned to a teacher trainer who works with him and personally advises him on the problems that arise. First he must learn something about the community, its major money crops, supplementary crops, minor crops, and the farm practices that are being used. During this time he is studying, in the classroom, methods and techniques by which this can be accomplished in the best and most diplomatic way.

The next problem concerns ways in which these farm practices can be improved; so that the farmer can better his environment and increase his income. With a thorough study, advice from his teacher trainer and the local agriculture teacher, the student forms a lesson plan so that he will be able to lead the discussion at the meetings and talk over the problems of these farmers, thus offering suggestions that will be of benefit to them.

The practice teaching work with high school students is somewhat different from the other phase of work.

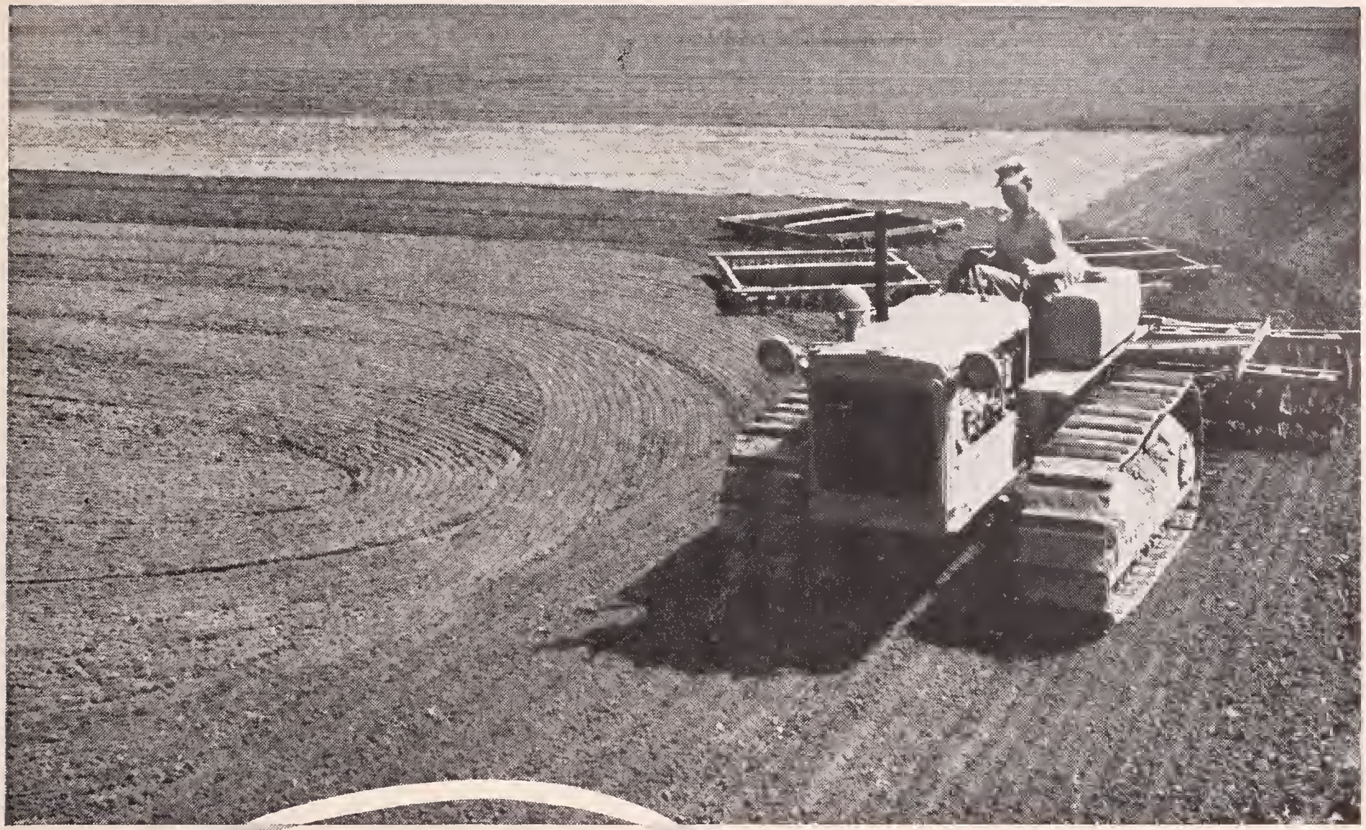
This second phase is carried out with the close cooperation of the local high school agriculture teacher. This is necessary because the trainee takes over the local teacher's program, which is planned to meet the needs of each student in the class. Of course, before any teaching is done the teacher trainer takes the students on a trip to familarize them with the community, and visit the high school boys they plan to teach. This trip gives the trainee a chance to learn the home conditions and local problems that face each student in his class.

Topics for the lessons are assigned each trainee, who makes out a complete lesson plan and submits it to the teacher trainer for correction and approval. The trainee rehearses his lesson before the teacher trainer and fellow trainees so that his method of presentation may be evaluated.

The trainee then substitutes for the agriculture teacher and has the full responsibility of the class. Afterwards, a discussion is held concerning the way the lesson was taught and suggestions for improving the methods used by the trainee are discussed in detail.

Frequent repetitions of this double-pronged plan of assuming re-

(continued on page twenty-six)



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BROW ROT STUDY MADE ON PEACH SHIPMENTS

By HENRY SIMONS
Experiment Station Editor

Do peaches which are apparently free of disease at harvest develop brown rot damage by the time they reach the retail market? To answer this question, experiments were begun last summer by the Botany Department of the Experiment Station in cooperation with the U. S. Department of Agriculture. Participating in the study were Dr. H. H. Foster, associate plant pathologist of the Botany Department; M. A. Smith and G. B. Ramsey, plant pathologists of the USDA.

Peaches from eight different spray treatments were harvested and then graded, packed and shipped the same day to Chicago, Ill. Two additional baskets from each spray plot were placed in storage at Clemson, one being stored at room temperature (78-85 degree F.) and the other at 36-45 degree F.

The freight shipment arrived in Chicago four days after leaving the shipping point in Spartanburg county. The peaches were then held at room temperature for four additional days to stimulate conditions in a retail market. At the end of this time, brown rot damage was found to be of commercial importance in the fruit from only three of the eight spray treatments.

Based on the results of these experiments, the following general statements can be made:

(1) Low temperatures during transit and storage reduced losses from brown rot in every case.

(2) Seven applications of wettable sulfur during the growing season gave excellent control of brown rot.

(3) Orchard sprays using the new organic fungicides, Zerlate and Phygon X-L controlled brown rot but were not superior to wettable sulfur. Phygon X-L at the rate used in these experiments caused most of the fruit to be discolored.

(4) The place to stop brown rot is in the orchard.

PLANT PATENTS

(continued from page six)

plant for which he solicits a patent; that he does not know and does not believe that the same was ever before known or used. The patent office requires two things of an applicant for a patent. First, he must file the specifications in duplicate, one under oath. Second, when the patentability of the plant rests on color, he must submit a permanent water color drawing on Whatman paper with the application. If the applicant is successful in securing a patent his minimum costs will be fifty dollars. The average total cost will amount to about one hundred fifty dollars considering the expense of a drawing or two if in color and the attorney's fee.

Since the application for a patent must be made by the originator, the little man or employee of a large concern is protected. A company cannot profit from the plant patent of an employee unless he is under written contract with them.

As long as the field of agriculture remains profitable, plant breeders will continue to seek improved varieties of plants. The field is wide open. There are about 280,000 species of plants known in the world, of which about a tenth are used by man today. Surely there are countless variations which if recognized and protected would bring a lot of money to some lucky people.

METHIONINE FOR FEEDS

It has been announced that increased production of low-cost synthetic methionine has made the product now available for commercial consumption. The amino acid has great potential use in feeds, since small additions to vegetable protein increases its efficiency and allow replacement of animal protein now in short supply. The new process for synthesizing the amino acid not only has greatly increased supplies but also has reduced the cost about 97 percent.

Goals are important...

We all have goals. Your immediate goal is that coveted "sheep skin" . . . your college diploma . . . the symbol of knowledge attained in your chosen field. To you it marks the beginning . . . an important step up the ladder to success.

We at Armour and Company have our goals, too. To the producer, from whom we buy farm livestock, milk, cream, poultry and eggs, our never-ending objectives are . . . fair dealings, unequalled service, and continued good-will. To the consumer . . . the people who buy our fresh, cured and canned meats . . . our butter and cheese . . . and our poultry and eggs, we strive to provide the highest quality food products available.

You know—and we know—that worthwhile goals are not achieved easily . . . yet they are well worth the effort.

ARMOUR
AND COMPANY

This picture gives you the driver's-eye view, operating the new rear-engine Model G tractor.

Your eye follows the oncoming rows clearly and easily. You have *straight-ahead* vision, instead of looking down or behind.

Equipped with a new front-mounted, low-set 2-row drill planter (or a multiple-row planter for soybeans and narrow-row crops) the Model G is the ideal self-powered planter.

Any one of 10 front-view Model G Matched Tools can be attached or detached in 5 minutes or less. The tractor wheels can be spaced for planting or cultivating 1 to 6 rows. Speeds range from ¾ to 7 miles per hour, including a special low creeper gear.

This is the tractor to replace that last team of horses. It operates on 2 to 3 quarts of fuel per hour, far thriftier than feeding a team the year 'round.

More than a new tractor, the rear-engine Model G is the central unit of a new system of motorized farm tools.

MODEL G *Rear Engine* TRACTOR

for some jobs on ALL farms
for ALL jobs on some farms

ALLIS-CHALMERS
TRACTOR DIVISION · MILWAUKEE 1, U. S. A.

CLEMSON HEREFORDS POLLED – HORNLESS THAT IS

BREED BEGAN IN 1900, CLEMSON NOW HAS LARGE HERD

By T. A. WARREN, JR.
Animals Husbandry, 1950

The Polled Hereford breed originated in the central west of the United States and in Ontario, Canada. Prior to 1890, certain breeders of Hereford cattle realized the advantage of the polled head over the horned head in the production of commercial cattle, and attempted to eliminate the horns of the Hereford cattle and still maintain so far as possible the many good points which have made the Hereford one of the great breeds of beef cattle.

The first attempts to produce polled Herefords were made by crossing polled cattle of other breeds with the Herefords. By this method many of the calves were polled and had Hereford color markings. These calves were known as single-standard Polled Herefords, as only one parent was naturally polled.

In 1901 Warren Gammon and Son of Des Moines, Iowa, bred the first purebred Polled Herefords. They sent letters to all Hereford breeders inquiring for purebred polled cattle which had turned up in their herds. As a result of their search they purchased seven cows and four bulls which were naturally hornless. This was the origin of the double-standard strain of Polled Herefords.

The American Polled Hereford Breeders' Association was organized in 1900 with Mr. Gammon as secretary.

Clemson's Polled Hereford herd started in 1935 when Mr. L. V. Starkey purchased Mossy Plato 26th and six of his daughters. This is now the largest and one of the best herds of Purebred Polled Hereford cattle owned by an agricultural college in the United States.

(continued on page twenty-six)

PENDLETON
FERTILIZERS
MADE BY
Pendleton Oil Mill
PENDLETON, SOUTH CAROLINA

Why Not Raise
THE HOG OF TOMORROW
and
Get a Premium for Your Market Hogs
American Landrace
Breeding Stock
NOW AVAILABLE AT
BRANCHBOUND FARM
(On Route 15 at Silver)
MANNING, SOUTH CAROLINA

All over America it's proving itself a

YEAR 'ROUND TRACTOR

Ford
TRACTOR

DEARBORN IMPLEMENTS HELP GET MORE DONE, EVERY SEASON OF THE YEAR

WINTER

SNOW PLOWING—Dearborn Snow Plows are raised, or lowered by Ford Tractor Hydraulic Touch Control. Attached by means of the Dearborn Universal Frame (sold separately).

WOODCUTTING—Carry the Dearborn Cordwood Saw on the Ford Tractor right to the job, then lower to working position by Ford Hydraulic Touch Control.

SPRING

PLOWING—The Ford Tractor is powered to handle the Dearborn two-bottom, 14-inch moldboard plow . . . also disc plows, middlebusters, 2-way plows, furrowers and sub-soilers.

CULTIVATING—With whatever type cultivator is preferred . . . lift type spring shank, rigid shank and front mounted attachments for either, as well as listed crop cultivators.

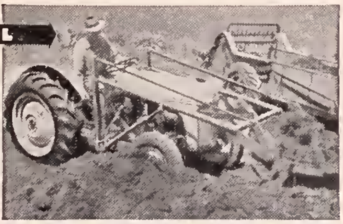
SUMMER

COMBINING—Whatever crop is being harvested, the Dearborn-Wood Bros. Combine can be relied on to cut, thresh and clean efficiently, under both good and bad conditions.

MOWING—The Ford Tractor and a Dearborn Mower take full advantage of good weather. The mower shown here can be attached in 8 minutes. Can mow up to 25 to 35 acres a day.

FALL

CORN PICKING—The Ford Tractor and Dearborn-Wood Bros. Corn Picker make a fast, clean-picking, dependable combination. Rows from 30" to 42" easily handled. Extra big husking bed adds to picking capacity.



LOADING—The Dearborn Standard Manure and Material Loader lifts and lowers by Ford Tractor Hydraulic power, carries loads to wherever they are to be dumped. Heavy duty model also available.

Dearborn
FARM EQUIPMENT

➧ *all 'round performance*

Naturally, the farmer thinks of a tractor in connection with field work. And, the more he uses a Ford Tractor in the fields, for plowing, discing, cultivating and the like, the more respect he has for the way it buckles down to heavy pulling and tough going . . . for the way it "takes the toil out of the soil" and the amount of work it helps get done in a day.

Here's a tractor that can handle a really tough plowing job and bring new speed and efficiency to other kinds of heavy field work. It's a tractor that pleases with the quality of its work and surprises with its economy.

➧ *all 'round the farm*

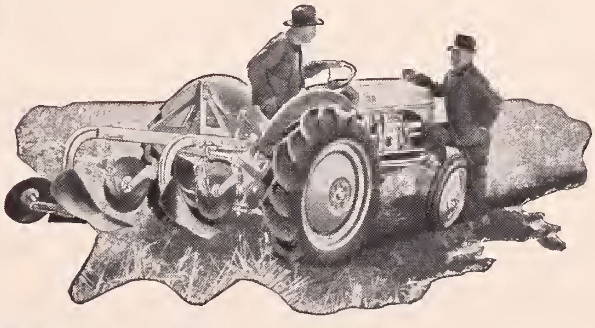
With a Ford Tractor and the right Dearborn Equipment, power and speed are brought to such jobs as scraping, leveling, loading, ditching, terracing, excavating, digging post holes, sawing wood, or clearing snow.

Most Dearborn Implements are lifted and lowered by a finger touch with Ford Tractor Hydraulic Touch Control.

➧ *all year 'round*

All of this adds up to the fact that a Ford Tractor keeps busy for many extra hours in a year . . . saving time and drudgery, instead of sitting in the shed. There's a difference in the greater amount of work done and in the way this tractor can be used to improve farms and increase earning power. For complete information, literature and demonstrations, see your nearby Ford Tractor dealer.

DEARBORN MOTORS CORPORATION • DETROIT 3, MICHIGAN



◀ *LOOK FOR THIS SIGN*—It identifies your nearby Ford Tractor dealer. You'll find him cooperative, a good man to know better.

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Ford Farming

MEANS LESS WORK . . .
MORE INCOME PER ACRE

2½ BUSHEL SIZE
INOCULATES UP TO 150 LBS. SEED
CULTURE "B" GOOD FOR
RED CLOVER, ALSIKE, CRIMSON, MAMMOTH
RED AND WHITE CLOVERS
NOBBE-HILTNER PROCESS
NITRAGIN
TRADE MARK REG'D. DEC. 6, 1898 NO. 32212
THE ORIGINAL LEGUME INOCULATOR
Has Served the American Farmer Since 1898
FRESH—HIGH BACTERIA COUNT—D
Read Guarantee — PACKED
BILLIONS OF LEGUME BACT
HIGHEST QUALITY AT LOWES
NITRAGIN
INOCULATION

Helps the Yield Holds the Land

You profit two ways when you inoculate clovers, alfalfa and other legumes with NITRAGIN. You gain from better growth and you save soil fertility. The healthy root systems on legumes inoculated with NITRAGIN take free nitrogen from the air to enrich the land . . . to give you higher yields of richer hay and pastures. These benefits cost only a few cents an acre—take only a few minutes' time. Make inoculation with NITRAGIN a regular legume-planting habit. Get "the inoculant in the yellow can" from your seedsman. Write for free bulletins . . . they tell how to grow better legumes.

THE NITRAGIN CO., Inc. • 3929 N. BOOTH ST. • MILWAUKEE 12, WIS.

PRACTICE TEACHING

(continued from page twenty)

sponsibility and leadership at evening adult meetings and high school agricultural classes gives the student a valuable background of practical experience to bolster his college classroom theory. When two semesters of such work are over, each student has a definite insight as to how a vocational agriculture teacher performs his duties in the community.

COTTON VARIETY TESTS

(continued from page four)

hulls. Cotton fits into your farming because it is a dependable crop, because you have the experience and the equipment to handle it, and for many other reasons that you can readily name. The first practice recommended by the extension cotton improvement specialists for the production of large yields of high quality cotton is to grow only a well-bred, wilt resistant variety of proven worth as to high-yielding, early maturing, desirable staple length (1 inch or longer) and other quality characteristics. Make the most of your cotton crop by selecting the variety which will give you the best returns.

CLEMSON HEREFORDS

(continued from page twenty-four)

Mossy Plato 26th was a great breeding bull, and his name appears in the pedigree of many famous sires. Mossy Plato 26th was followed by Rollo Domino 2nd which is also an excellent herd sire.

The next bull of importance was Battle Domino 11th which is the present senior herd sire. This bull is the sire of many show cattle including a reserve champion female and a grand champion bull at the National Polled Hereford shows. The female sold for $6,000 and the bull for $35,000.

At present the Clemson herd contains more than 100 females, most of which are of breeding age. Practically all of the females in the herd have been produced by the college.

The bull calves from this herd are usually purchased by farmers. Last year an auction sale was held to dispose of the young bulls, and this will probably be the plan followed in the future. Information concerning this plan will be available at a later date. Anyone interested in purchasing a young bull for breeding purposes should obtain information concerning this sale.

Visitors are always welcome to come and see this herd. Last summer an estimated 3,000 people visited the herd during the period of one month.

First Farmer: "Which is correct: A hen is sittin', or a hen is settin'?"

Second Farmer: "I don't know, and I don't care. All I bother about is when she cackles—is she laying or is she lying?"

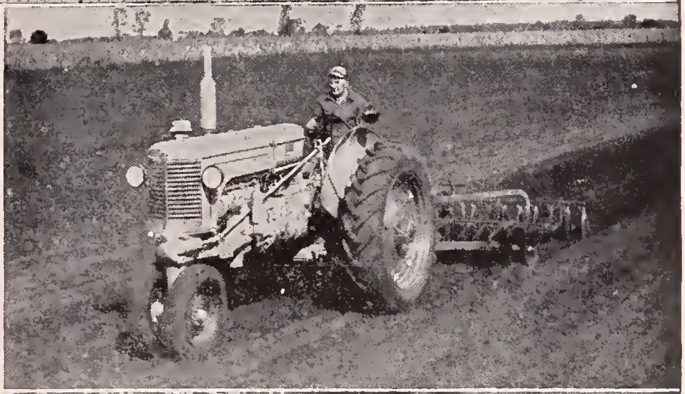
Pioneers Conquered This Land With Their Hands . . .

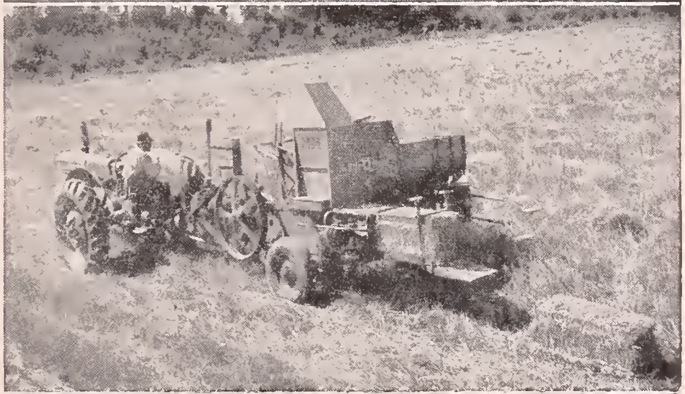
Modern Machines Made It a Land of Plenty!

PIONEERS came with their axes, guns and hoes, their wooden plows, iron plows, steel plows, oxen and horses; and through hard work, unimaginable hardship and drudgery carved for themselves homes and farms from a rugged, new land. Their farming tools were in many respects quite the same as those used in Biblical times and not much better. But unlike the people of older times, men in this land had equality, opportunity, aggressive ingenuity, freedom from oppressive restrictions . . . time and opportunity to think and plan. And men prospered . . . invented machines to help do their tasks faster and better. The last 100 years was a period of sudden, swift progress . . . real progress . . . and it parallels the history of the farm machinery industry. More progress was made in the last fifty years than in all the ages before.

That progress continues under the American system of free enterprise and capitalism. Men who plan beyond tomorrow know that modern methods of agriculture will assure posterity of fertile, productive soil. That is why more and more progressive farmers demand MM MODERN TRACTORS, MACHINES, and POWER UNITS. They know that the MM trademark is the recognized symbol of highest quality since 1865. Today MM modern machines of proved dependability and economy . . . machines built to do the work with comfort, convenience, and safety enable the farmers of America to supply the world with food, fiber, and oils.

Today's farmers using modern methods and modern machinery are truly *Pioneers of Progress!*





MINNEAPOLIS-MOLINE
MODERN MACHINERY

PIONEERS OF PROGRESS

MINNEAPOLIS-MOLINE

MINNEAPOLIS 1, MINNESOTA

NEWS FROM '48 GRADS

Agricultural Economics

Gilbert Hardee, former state BSU president, and Jay Young, president of the YMCA while at Clemson, are graduate assistants at the University of Kentucky. During the summer they did field work in Kentucky and started work on their Masters' degree last fall.

Lamar Judy has accepted a position with the South Carolina Planning and Development Board in Columbia, which works toward bringing industries into the state. He also did some work on the new grain elevator in Anderson.

Agricultural Engineering

James H. Arnette is now assistant professor of Agricultural Engineering at the University of Florida.

Fred K. Norris is engaged in farming at his home in Eutawville.

Carl M. Lund is employed as Service Manager of the G. I. Case Co., in Charlotte, North Carolina.

J. S. Evans, L. A. McInnis, B. K. Quattlebaum, and Ernest Rogers are working with the college and the South Carolina Agricultural Experiment Station here at Clemson.

Agronomy

D. B. Rosenkrans, Jr., is now Associate Agricultural Editor at the Mississippi State College Experiment Station.

Don Sharp is now operating a farm in Orangeburg County.

B. N. Kelly is in charge of all farms at the State Hospital in Columbia.

E. D. Weimortz is now employed by the Perry-Morse Seed Company in Detroit, Michigan.

R. D. Nicholson is engaged in Farm Management work in Tennessee.

I. N. Rizer is engaged in farming and instructing veterans at Lodge, South Carolina.

E. G. Tate is employed as Assistant County Agent of Greenwood, County.

H. Z. Woodfin has a job with "Uncle Sam" at Fort Jackson.

N. C. Anderson is Assistant County Agent of Clarendon County and is currently residing at Manning.

K. R. Bell is located in business at Mullins.

E. R. Bozeman is doing work on artificial insemination in Laurens County.

Dairying

R. M. Hanckel is at the University of Missouri in Columbia, Missouri engaged in graduate work on dairy products.

Jerome Senn is stationed at Fort Jackson, South Carolina with the rank of 2nd Lieutenant.

C. E. Cousins accepted a position as Assistant County Agent in Richland County.

M. B. Smith is in the dairy business at Spartanburg.

W. T. O'Dell is connected with the staff of the Dairy Department at Clemson.

Entomology

W. M. Askey is located in Columbia with the State Board of Health.

R. B. Hancock is engaged in the Department of Entomology and Plant Quarantine in New York.

L. H. Moore is doing graduate work at Texas A. & M. College.

A. C. Turner, Jr., is doing graduate work at the University of Illinois.

Horticulture

W. J. Park is employed by a seed company in Greenwood.

Roscoe Higdon is now working at the Sand Hill Experiment Station in Columbia. He recently finished a semester of graduate work at Michigan State College.

James S. Rodgers is Assistant County Agent of Charleston County.

QUESTIONS

A Twice here in red, two-thirds in white,
Explains just why a Chesterfield's right.

B Four are shown and all the same
In color and shape, but not in fame.

C You've no doubt heard it noised about that oysters "R" in season,
One glance at lovely Linda and you're sure to see the reason.

ANSWERS WILL APPEAR IN THE NEXT ISSUE OF YOUR MAGAZINE

Chesterfield

RULES FOR CHESTERFIELD HUMOR MAGAZINE CONTEST

1. Identify the 3 subjects in back cover ad. All clues are in ad.
2. Submit answers on Chesterfield wrapper or reasonable facsimile to this publication office.
3. First ten correct answers win one carton of Chesterfield Cigarettes each.
4. Enter as many as you like, but one Chesterfield wrapper or facsimile must accompany each entry.
5. Contest closes midnight, one week after this issue's publication date. New contest next issue.
6. Answers and names of winners will appear in the next issue.
7. All answers become the property of Chesterfield.
8. Decision of judges will be final.

LAST MONTH'S ANSWERS & WINNERS

A DANA ANDREWS and C. D. ALLEN talking about Chesterfield.
Mr. A(ndrews) says "They're mild and they taste good."
Mr. A(llen) says "I've been smoking Chesterfield ever since they used to put them up in a cardboard box."

B DANA ANDREWS in "NO MINOR VICES." (The sequence refers to the number of letters in the three words of the picture title).

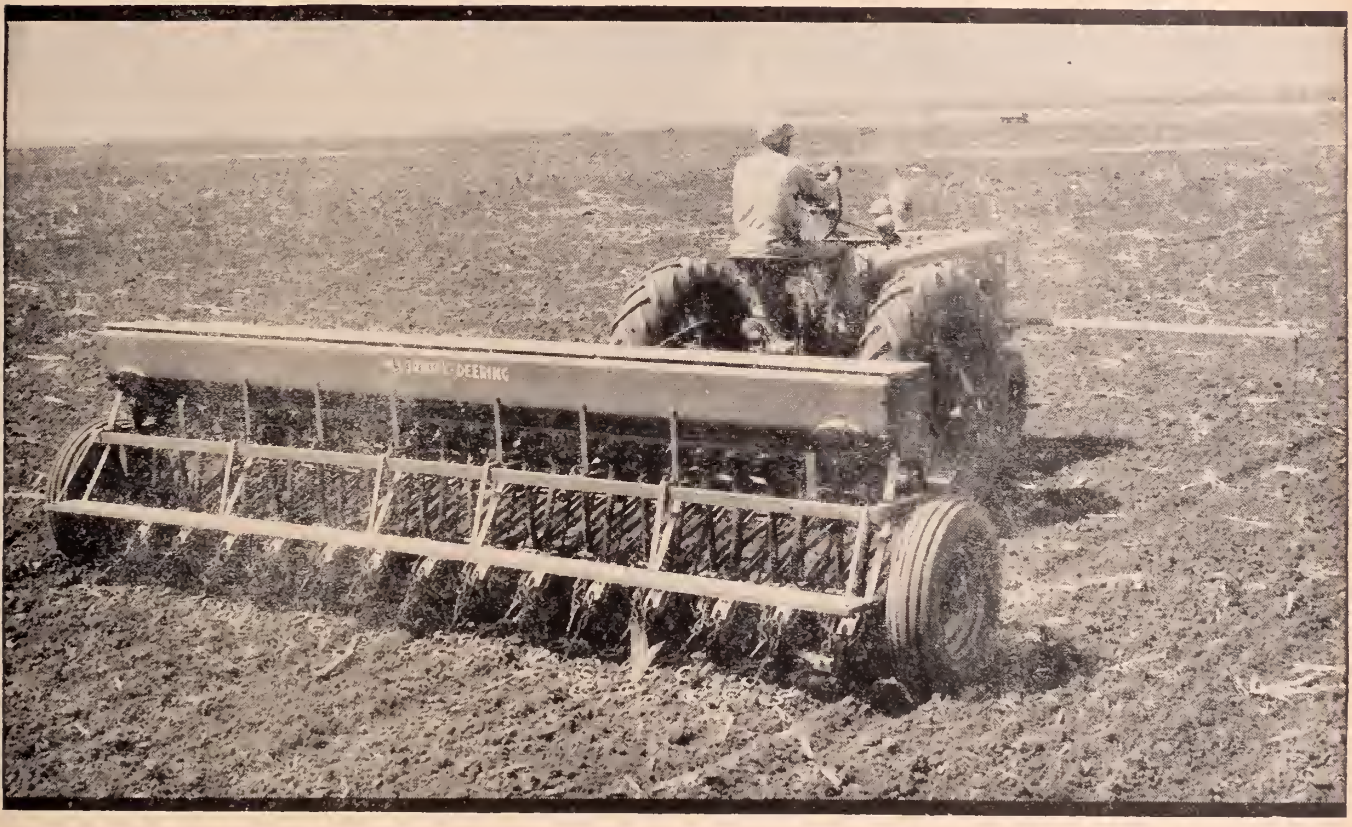
C Answer: SEMORA. Spelling backward (AROMES) you change E to A and get fragrant smells (AROMAS).

WINNERS...

R. H. Heinbockel, J. T. Cribb, J. F. Cathcart, J. G. Peeler, J. F. Craig, C. B. Sanders, E. L. Shealy, P. Boyd, J. Wilson, F. Adickes

OK Boys, more free smokes this month—just put on that old thinking cap and see if you can't put your name in that winner list. Submit entries to room 3-228 or 8-230—Ten winners.

THE NEW IH LOW-WHEEL
. . . . . GRAIN DRILLS



SEED WITH SPEED AND ACCURACY . . . .

Here is the new IH Model M low-wheel grain drill—seeding 5½ acres of grain per hour.

The companion line of Model MF fertilizer grain drills resembles the Model M. But the MF has a large-capacity divided hopper with one side each for fertilizer and grain. The separate drive of the fertilizer mechanism can be set to deposit 30 to 1,135 pounds of commercial fertilizer to the acre.

These two models of the new line of IH drills are built for fast precision seeding of practically any size or kind of seed. The Model M and Model MF each have an all-steel frame of welded construction that gives the backbone of strength to work behind a tractor at today's popular speeds, as a single unit or in multiple hitches.

The 6.00-16 tires give these drills flotation on soft seedbed. That helps assure the seeding depth desired; also results in power-saving lightness of draft. Bearings are pressure-lubricated and well protected from dust.

These new IH drills are furnished with the type of furrow openers selected; and with fluted or double run feed. Your IH dealer has full information on the size of Model M or MF drill equipped exactly to suit individual needs.

INTERNATIONAL HARVESTER

This modern building symbolizes the expanded service facilities of IH dealers throughout America.

180 NORTH MICHIGAN AVENUE • CHICAGO 1, ILLINOIS

LISTEN TO JAMES MELTON ON "HARVEST OF STARS" EVERY WEDNESDAY EVENING ON CBS.

Always Buy CHESTERFIELD

"Everybody likes Chesterfield because it's MILDER it's MY cigarette."

Linda Darnell

Starring in

"A LETTER TO THREE WIVES"

A 20th Century-Fox Production

"I've been smoking Chesterfields ever since I've been smoking. They buy the best cigarette tobacco grown . . . it's MILD, sweet tobacco."

M. H. Griffin

TOBACCO FARMER
BAILEY, N.C.

(FROM A SERIES OF STATEMENTS BY PROMINENT TOBACCO FARMERS)

MAKE YOURS THE **MILDER** CIGARETTE

Copyright 1949, Liggett & Myers Tobacco Co.

For CHESTERFIELD CONTEST See Page 28

The Agrarian

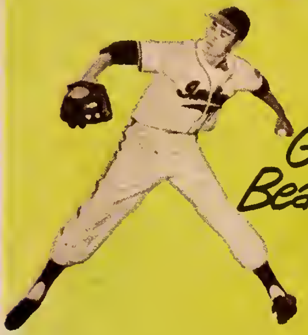
OFFICIAL STUDENT PUBLICATION

The Clemson Agricultural College ★ School of Agriculture

MAY, 1949

CLEMSON, S. C.

Camels FOR MILDNESS!



Gene Bearden

Voted the "Rookie of the Year" in the American League with an earned run average of 2.43, Gene was the pitching hero of the '48 World Series... stepping out on the mound to wrap up two big climax games for the Cleveland Indians.

Johnny Vander Meer

After many seasons with the Cincinnati Reds, he has more strikeouts to his record than any pitcher on the Club. Vander Meer is the only big leaguer to pitch two "no-hit" games in a row.

I'VE SMOKED CAMELS FOR 10 YEARS, GENE! THEY'RE MILD AND THEY SURE TASTE GREAT!
RIGHT, VAN! IT'S CAMELS FOR ME, TOO— EVER SINCE I MADE THE 30-DAY MILDNESS TEST!

In a recent test of hundreds of people who smoked only Camels for 30 days, noted throat specialists, making weekly examinations, reported

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The Agrarian

OFFICIAL STUDENT PUBLICATION

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Flowering Dogwood article courtesy of The Master Gardener, Swift & Co.

COVER—Azalea blossoms in all their glory. Which side of the picture is "right-side-up?" Don't get dizzy trying to figure it out, for as Francis Bacon said — "There is no excellent beauty that hath not some strangeness in the proportion."

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HER MAJESTY QUEEN AZALEA

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The azalea is near the top in popularity among the flowering shrubs in the South today. Some people place the Camellia first, but others insist that it is surpassed by the Azalea. The South Carolina low-country has in recent years become famous as a showplace for this queen of flowers. There one finds nestled in among the graceful moss covered oaks, thousands of beautiful azaleas in all shades and colors. Every year people come from all over the country to see and enjoy the beautiful spectacle.

By W. J. JENKINS
Horticulture, 1951

For a number of years the city of Charleston has put on an annual Azalea Festival. For a week during the heart of the blooming season, this city rises out of its historic past, puts on its holiday clothes and begins to rock with merriment. The festival opens with a parade of the states most beautiful girls riding on highly decorated floats accompanied by every band and high official in the state. Event follows event in rapid succession until at the end of a breath taking week, the festival reaches its climax with the crowning of the queen and the Coronation Ball. Here every year is shown proof that the beauty of South Carolina flowers is surpassed only by the beauty of its girls. At the recent festival held in April, excitement ran so high that even the fact that there were no azaleas in bloom during the festival failed to put a damper on the fun. Due to an early spring every flower except a few very late varieties had finished blooming long before festival time, but just the same the entire state and thousands of tourists poured into the city to share in the fun.

The Azalea is important not only as a decoration and tourist attraction, but also as a commercial crop supplying many nurserymen in the South with their principal source of income. Nurserymen specialize in propagating and growing out Azaleas for the retail florists who force out the blossoms and resell the plants. South Carolina is especially well adapted for this business because the state has a long growing season which enables the growers to get a salable plant in a relative short period of time.

There are a number of species of Azaleas but most popular are the Azalea indica, Azalea obtusum or Kurume Azalea, and Azalea Kaempferi. The Indica is a fast growing evergreen with rather large leaves. Its habitat is limited to the lower part of the state because it is rather easily killed by cold weather. The Kurume is the well known dwarf Azalea. It is also evergreen but it has a slower more compact type growth. It is much more cold resistant than is the Indica. The Azalea Kaempferi is very well suited to growing in the colder regions of the South because it comes into bloom late in the Spring after danger from frost is gone. All of these species come in a wide range of colors.

The Azalea is a rather simple plant to grow. It is easily propagated by vegetative means. Usually they are propagated by cuttings, but if only a few new plants are desired it is quite easy to propagate by layerage. Azalea cuttings are taken from half ripe wood preferably in July or August. If placed in clean sand about an inch apart, they should root in about four weeks. The cuttings require moisture, but care must be taken to prevent over watering. As soon as roots get about one inch long the cuttings should be put in pots with a soil mixture of one-third soil, one-third sand, and

(continued on page thirteen)

STATE FINANCES — WHERE THE MONEY GOES

The ever-increasing demands of the people for state government to accept financial responsibility of special functions has pleced public expenditures in a role of vital importance. Evidence of this is shown by the marked increase in state expenditures in South Carolina during the past three decades. For example, the total expenditures of state government in 1919 amounted to less than four million dollars. Twenty years later the total had jumped to more than thirty-seven million dollars, and this year (1948-49) the appropriations for state purposes amounted to over one hundred and four million dollars.

There are several major causes responsible for the phenomenal increase in total expenses of state government during the past thirty years. The first of these is the establishment of new departments, commissions, bureaus, and institutions for the purpose of performing new functions. State government has changed from the simple affair it was in 1919 to the complex form of government that we have today, in which there is an agency for each activity which society has demanded that the state undertake. State expenditures were limited to forty-seven departments and institutions in 1919, but by 1938 the number had grown to sixty-one. Since 1933, no less than eleven new agencies of government have been established. During the fiscal year 1938-39, the expenditure of these agencies amounted to nearly four and one-half million dollars or twelve percent of all state expenditures.

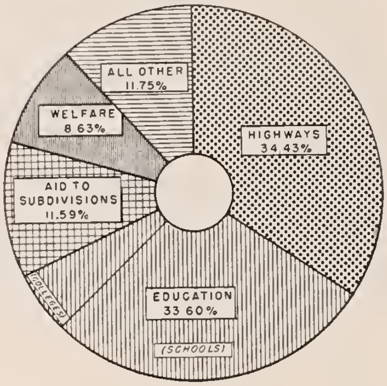
A second major cause has been the natural growth and expansion of functions and activities recognized as obligations of the state. There has been a large increase in the enrollment of state-supported colleges and universities. The needs of the State Hospital and Penitentiary have greatly expanded. Also, the work of the General Assembly has been increased and tremendously complicated by changing economic conditions.

A third major factor in state expenditures has been the assumption of financial responsibility by the state for activities which were formerly financed by counties and districts. State financing of a nine months' school term, construction of highways, and relief for the old, the blind, and the dependent children have all added to the burden of state expenditures.

By Kelly P. Howell
Agricultural Economics '51

Still another cause for an increase in state expenditures has been the decrease in value of the dollar. Even though 1919 was not a normal year, the dollar was worth more than it is today.

WHERE THE MONEY GOES
(Distribution of State Expenditures in South Carolina, 1948-49)



In 1919,. the state spent funds on public schools only for the purpose of encouraging school improvement. Later, the idea that the state should support the schools for a definite term gained general acceptance. This term changed many times before it arrived at the present length of nine months. This year, 1948-49, funds for education for both schools and colleges accounted for 33.6 percent of the total amount, or above thirty million dollars, as compared with 34.8 percent of the total and less than 1.5 million dollars in 1919. This figure however was supplemented by tuition and other fees. State colleges received approximately 5.5 million of the 35 million dollars for education in 1948-49 including tuition fees, leaving about 29.5 million dollars for elementary and high schools.

State highways have expanded at a very rapid rate, and many miles of county and rural roads has been incorporated into the state system. This has led to an increase in the amount of money to be spent by the state. In 1919 the State Highway Department spent less than one hundred thousand dollars, but this year the expenditures amounted to almost thirty - six million dollars or 34.4 percent of the total expenditures.

Another marked increase in expenditures has occurred in welfare work. Prior to the beginning of this program, the work of poor relief was left entirely up to local governmental units or to private charity. However, welfare accounted for over nine million dollars of the appropriations for the year 1948-49 or 8.6 percent of the total. This is more than twice the total of all state expenditures thirty years ago.

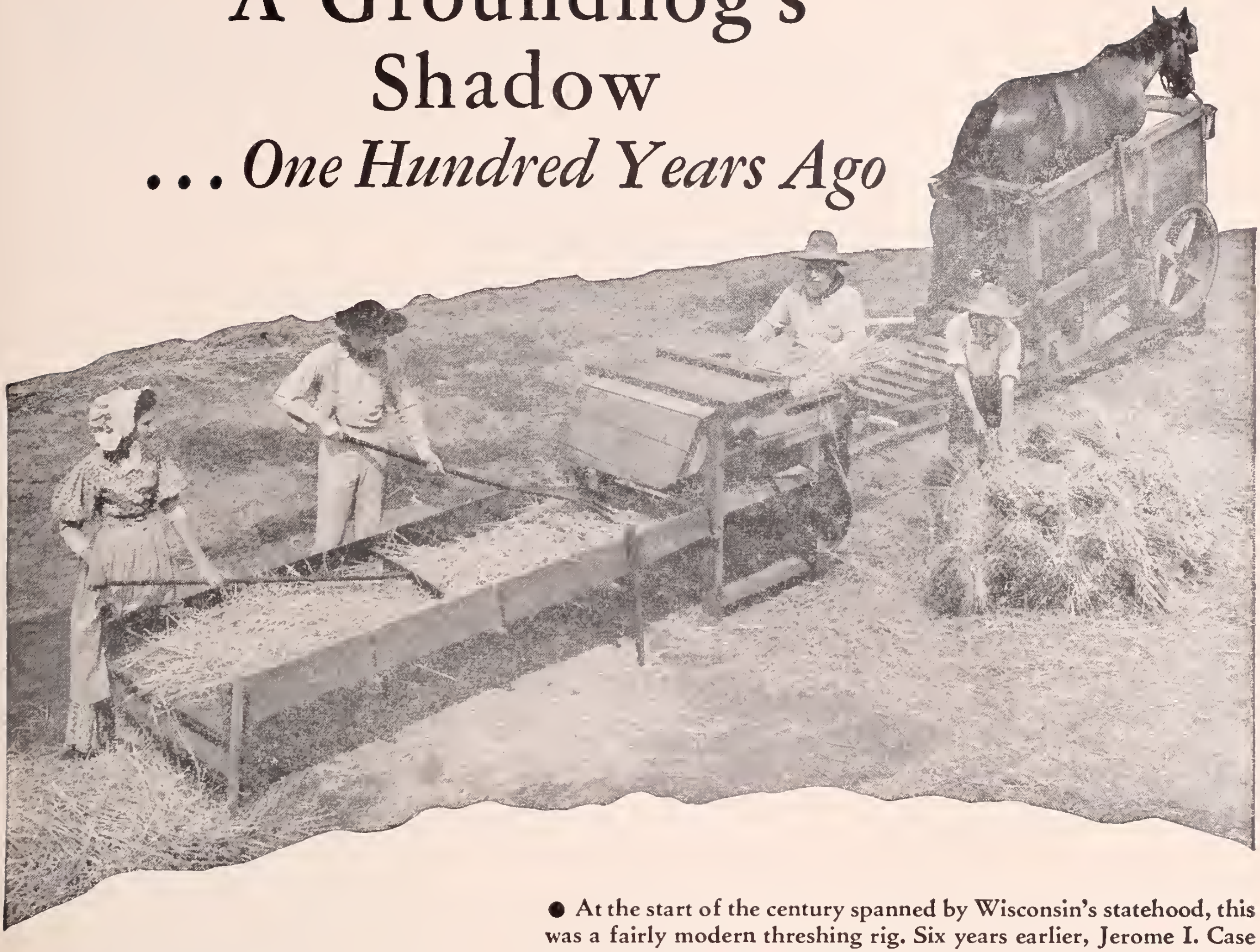
Still another major item of expense has been the aid given to subdivisions by the state. This factor accounted for 11.59 percent of the total expenditures for this year.

These four main items (Education, Welfare, Highways, and Aid to Subdivisions) accounted for 88.25 percent of total expenditures for 1948-49, leaving only 11.75 for all other items combined. The chart on expenditures for 1948-49 shows the main items of expense with the percent of the total that they account for.

The prospect for reducing the expenditures of state government are not encouraging, for South Carolina at the present time is providing only a minimum of services now considered necessary and desirable. As a matter of fact, South Carolina suffers in a comparison with other states as to the amount and proportion of money spent on certain essential functions. This being the case, it would seem that emphasis should be placed upon getting the most value out of each dollar spent.

The placing of personnel on state more efficient personnel on state jobs, the elimination of duplicating and overlapping functions, and the reappraisal of all the many activities carried on in the name of the state, constitutes important steps in state government not only in South Carolinia but everywhere.

A Groundhog's Shadow
... *One Hundred Years Ago*



See "Pageant of Progress," as thousands saw it daily for a week during the Wisconsin Centennial Exposition at Milwaukee last summer. Filmed then, this Case pageant of quaint costumes, strange skills, ancient tools and modern machines has been made into a full-color sound movie. Besides being shown by Case dealers, this 16 mm. film is available for meetings sponsored by educational agencies and farmer groups. Write now for reservation of future date. Address our nearest branch. J. I. Case Co., Racine, Wis.

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THE FERN GUERNSEY FAMILY COMES TO CLEMSON

South Carolina has made great strides toward improving its dairy industry during the last half century. One of the most outstanding pioneer leaders in this development has been Mr. C. S. McCall of Bennettsville. His Appin farm is one of the oldest and best dairy enterprises in the South. He was born in Bennettsville and grew up there, being educated in the Bennettsville schools. Upon his high school graduation, he entered Bingham School in Asheville, North Carolina, where he spent two years. From here he went to The Citadel where he was graduated with the Class of 1901.

Left to right: Appin's Hattie, Appin's Lass, Appin's Levonia, Little Fern of Appin and Appin Ofern

C. S. McCall

Mr. McCall's inherent love for agriculture brought him back to the farm where he has been located ever since, growing principally cotton and kindred farm crops. Aside from his farming operations, he is connected with several business enterprises in Bennettsville. He has been president of the McCall-Weatherly Mercantile Company for thirty years. He is president of the Marlboro Warehouse Company and vice-president of the Marlboro Trust Company.

In 1930 his friends prevailed on him to enter politics and he successfully obtained election to the South Carolina State Senate, in which capacity he served four terms, a period of 16 years. At the conclusion of four terms he voluntarily retired to devote his time to private business.

By J. E. CUSHMAN
Dairying, 1951

The State Dairy Extension Forces persuaded him to purchase his first purebred Guernsey female in May 1917 and thus the development of a great herd of Guernsey cattle was started.

The foundation females of this herd included two full sisters, Fern of Glenville, born March 16, 1916, purchased in November 1917 and Glen Gable Lady Williams born March 2, 1917 purchased in June 1931. Mr. Paul G. Williams, Cochranville, Pennsylvania bred both of these sisters. Fern of Glenville proved to be a great brood cow through her five sons and her two daughters, all of which were used extensively in the herd. Glen Gable Lady Williams is important to this family especially because she became the mother of Appin's Lady Williams as a result of a mating with Fern's Raider of Appin, the most important son of Fern of Glenville. The inheritance of Fern of Glenville and of Appin's Lady Williams were blended with that of five foundation herd sires, Beauty's Raider of Waddington, a son of Imported Border Raider; Winston Farms Glory Boy, a son of the great brood cow Gold Dust Valentine; Upland's General, a son of Langwater Cavalier; Foremost Golden Boy, a son of Langwater Foremost: and Argilla Forecaster, a son of Dolly's Foremost of High Rock, to produce the Fern Family of Guernseys which has made the Appin Farm herd famous and provided foundation breeding stock for many famous herds of Guernseys in the South such as Appin's Golden Fern at Quail Roost, Appin's Kitty at Klondike, Appin's Happy Girl at Clear Springs, Appin's Flirt at Edisto, Appin's Kesta at Caughman Bros., Appin's Gaiety at Fletcher Bros., and Appin's Bopeep at Dinsmore to mention only a few.

A production testing program in Advanced Registry on 3 milkings per day for 365 days was started in 1920 and has continued through good and bad years to the present time. Fern of Glenville made a national class leader record in 1922 with 15,157.6 pounds of milk, 815.6 pounds butterfat in class AA. In 1927 Appin's Lady Williams produced 13,155.5 pounds of milk with 816.-3 pounds butterfat in class B. Although the records made in the Appin Farm herd have always been creditable, it is a tradition that cattle sold from this herd have invariably made better records in their new homes to reflect the very modest arrangements available for the testing work at Appin Farm.

(continued on page twenty-four)

OUTSTANDING GRADUATES OF AG. SCHOOL

Several weeks ago our Editor assigned this writer the pleasant task of writing an article about this year's outstanding agricultural graduates. The selections were made by students, professors, various agricultural clubs and by members of The Agrarian staff. We have tried earnestly to give you a true representation of each department. These men do not necessarily have the highest grade point ratio in their respective major courses. They were picked because of their leadership, personality, scholastic ability and above all, because each one is truly a "good Joe". If their past gives us any idea of their future, they will be the leaders in the agricultural fields of tomorrow.

Agronomy

Sonny Montgomery started at Clemson back in September of 1942. Shortly after this he went into the service and then re-entered in September of 1946. Agronomy has always been a high light in Sonny's life. An outdoor man, he likes to hunt, fish and play all sorts of sports. He got a good educational foundation at Sumter High School and has used it to every advantage at Clemson.

Asked about a future, Sonny stated, "I've always farmed—can't see and reason for changing now".

Sonny Montgomery

He seems to have done well at this profession and certainly with the knowledge he has gained at Clemson, should gain even greater farming wealth.

Sonny takes great pride in having an evening with the boys over a pinochle game. His room greatly resembles the juice shop on a warm morning—people everywhere. Sonny Montgomery is looking ahead and will be an alumnus of which our college can and will be proud.

Animal Husbandry

Harry "Fuzzy" Falls entered Clemson in May 1943 as a student of mechanical engineering. Then there was a war, and he finally got back to Clemson in September of 1946. Animal Husbandry seemed a little more like what "Fuzzy" wanted. The change was a good one because Harry has made a record of which the A. H. department can be proud. He made honors his sophomore year, High Honors his junior year, and this year he has made the highest honors given at Clemson College.

Harry Falls

Aside from studying, "Fuzzy" likes to get out on the green for a good evening of golf. His high school days, back in Asheville, N. C., were largely spent riding horses and getting out of the city for outdoor life. This is exactly the type future "Fuzzy" has picked out for himself as a cattle buyer. If this falls through, he plans to give the air corps another try. This time as a peacetime flying cadet.

Ag. Engineering

A. B. Snell's friends like to call him "Ab". He takes a special pleasure in helping fellow students who don't seem to learn very quickly, and is known for his helping hand which seems to be extended at all times. We might describe him as a hard working friendly and very conscientious fellow.

Ab. Snell

"Ab" is interested in farm machinery and plans to make it a life vocation. He has done well in Agricultural engineering, not to mention such courses as Hydraulics, Mechanics, Food Preservation, History and Government. He is writing his thesis on farm spillways and has done a great deal of research on this project. By this, we can see that "Ab" Snell is doing his best to insure himself of a future on which he can depend. At present, he is looking over a wide field and is turning down no offers for a good job.

Dairy

S. E. McGregor, known to everyone as Sam, is one of this years' most promising Dairy students. Sam came to Clemson from Lykesland, S. C., at the beginning of the 1945-46 school year. Among other activities, Sam has been Editor of The Agrarian, Chancellor of Alpha Zeta, a member of Blue Key, Tiger Brotherhood, and the Dairy Club. He was also chosen this year for Who's who in American Colleges and Universities.

Sam McGregor

When asked what meant most to him at Clemson, Sam replied, "people and being Chancellor of Alpha Zeta." As a hobby, Sam has chosen purebred Guernseys. As a future, Sam plans to help his father with their dairy in Lykesland.

Horticulture

J. C. Bishop did some truck farming in Beaufort, S. C., after finishing his hitch in the service of our country. "Bish" has a very charming wife and their little pre-fab has an air of home life about it. He is a straight forward fellow who tells you what he thinks and talks to you straight from the shoulder.

"Bish" has been president of the Horticulture Club, a member of Alpha Zeta and on The Agrarian staff. He likes to tinker with radio as a hobby. He spends much of his time recording his favorite radio programs. "Bish" says fellowship is about the most important gain Clemson has given him, aside from his major work. J. C. Bishop is looking forward to getting back at truck farming with a few new ideas as ammunition.

J. C. Bishop

Poultry

Raymond West came to Clemson in February of 1946 fresh from The United States Navy. While in the Navy, Raymond decided on agriculture as a field. The thing that seemed to trouble Raymond, was the fact that he couldn't decide which phase of agriculture he liked best. When Raymond began his education, Poultry was not offered as a major course. Just as soon as our agricultural department was able to offer this, Raymond jumped at the chance to enroll and he has become the very first Clemson man to graduate in this field.

Raymond West

Raymond likes sports as a hobby. He particularly likes to watch a good football game and has become somewhat of a player himself on the intramural squads. Every month or so, he likes to trout fish in some mountain stream.

When asked what he thought most beneficial to him during his college career, he replied, "My friends and the contacts I've made at Clemson". Raymond plans to go back to his home in Spartanburg, S. C., and run a poultry farm for a profession.

V. A. E.

Len Reynolds was chosen by his classmates as the most outstanding student in V.A.E. for this school year. Len's smile wins you the very first time you meet him. He seems to be a person who likes to mix a little pleasure with his work. Graduating last February, Len's time is now taken up with graduate work. However, he likes to take time off to see every football, basketball and baseball game that Clemson plays. He covered most of these games as sports Editor of the Tiger.

Len likes to do a little writing and is using for his thesis work a theme based on a publicity program for South Carolina Agricultural Teachers. His biggest honor came when he was chosen for Who's Who in American Colleges and Universities at Clemson College.

Len Reynolds

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RUSTS OF SMALL GRAINS

LARGE PERCENTAGE OF 1949 CROP AFFECTED

From the reports over the state this year, the wheat crop seems to be highly infected with rusts, both stem and leaf rusts, but chiefly leaf rust. Many samples of grain have been sent to Clemson to have the disease attacking them identified and in many instances the disease has been found to be leaf rust.

These rust diseases, which occur wherever wheat is grown, are among the best known and most important of all plant diseases. They have been a major factor in the production of wheat for 2000 years or more. Long ago, before the relation between barberry and cereal stem rust was known, shrewd farmers noticed that grain suffered most severely from the rust when barberries were nearby and because of this, laws were enacted requiring the destruction of barberry near grain fields.

The injury from the rusts is very dependent on weather conditions. Some years the diseases cause practically no damage, while at other times they are very destructive. In 1935 the stem rust disease reduced the nation's wheat crop by 160 million bushels.

By R. CARLTON HERRING
Agronomy, 1950

The stem rust fungus is subdivided into seven varieties and each variety in turn is subdivided into various numbered physiologic races, each being able to attack certain varieties of grain crops. From the type of reaction produced on each variety the race can be identified by the use of a key.

The symptoms of stem rust on grain crops are very definite and the rust can usually be readily detected. Stem rust first appears as long, narrow streaks, largely on the stems but also on the leaf sheaths, leaf bases, or distal part of the leaf blade. In some cases the rust even occurs on the glumes and awns and in rare cases on the grain. The streaks are covered with a dark red powdery mass of one-celled urediospores, produced from the feeding mycelium inside the stem or leaf. The epidermis is torn to form a white collar around the pustule or sorus. As two-celled teliospores replace the urediospores in the sori, the sori become black an dit is at this stage that the stems become dried and cracked or broken, and the grains lacking or few in number, shriveled and light in weight.

The leaf rust appears on the leaves and leaf sheaths as small, round to oval, bright orange pustules in the early stages. This disease begins in the lower leaves and works toward the top of the plant. In the latter stages of the disease the pustules become black as with the stem rust.

The life cycle of the wheat stem rust organism is a rather long and complicated one because the rust

(continued on page thirty)

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AZALEAS

(continued from page three)

one-third humus. It is necessary that the young plants be protected from the cold over the winter and bedded out in the spring. The same soil mixture may be used for bedding out but four pounds of Azalea and Camellia fertilizer should be added for every 100 square feet of space in the bed. After setting out, the plants should be mulched about two inches thick with straw, leaves, well rotted sawdust or any similar material. Fresh shavings or sawdust should not be used because they bring about a nitrogen deficiency in the plants. Pine needles make an excellent mulch when available. Mulching is necessary because the Azalea throws its roots near the surface and a mulch keeps the soil temperature and water content of the soil fairly even, thus preventing drying out. For vigorous, healthy plants a pH of from 4.5 to 5.5 should be maintained.

There are a number of fungus diseases which attack Azaleas. The more important of these are Die Back, Blight, and Flower-Spot. Die Back shows up with a drying up of the leaves. The stems turn brown and die. To control the disease cut out the diseased tips well below the infected parts. Blight affects the terminal flower buds and later the leaf and stem buds. Diseased sections do not bloom and are covered with thousands of spores. Treat with Bordeaux mixture or copper-lime dust. Flower-Spot is a disease peculiar to the southern states along the coast. The Indica and Kurume Azaleas are especially susceptible to it. In the first stage, circular spots about the size of a pinhead appear on the undersurface of the petals. In favorable climatic conditions, the spots enlarge rapidly and run together appearing white on colored flowers and brown on white flowers. The affected flowers become limp and are covered with a frost like mat formed of spores of the fungus. These are easily carried away by wind and rain, also by bees and other insects which spread the infection. The most effective way to control the disease is by removing all the flowers and destroying them. If this is not possible, treat the flowers with a colorless fungicide.

The principal insect pests of Azaleas are Lacebug, and Red Spider. The Lacebug feeds on sap and chlorophyll from the leaves. This causes the leaf to become gray splotched or almost entirely blanched. Only a few bugs are necessary to cause considerable damage. The best control has been obtained with Florida Volck using one gallon to 100 gallons of water, plus 1½ pounds of derris root. The Red Spider feeds on both leaf surfaces, withdrawing plant juices and causing the leaves to become reddish brown. To control, spray the plants with Florida Volck about the first of October.

Despite disease, insects, and particular cultural requirements, even the inexperienced can get good results growing Azaleas. Every year thousands of people in the South get a great deal of pleasure out of raising the plants and watching them bloom. Surely, so many people can't be wrong.

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DECAY AT BAY!!

Fence Post Treatment Proves Practical and Effective

CHEMICALS USED AS PRESERVATIVE

Fence posts treated by the trough method give over five times the life of untreated posts. Recent experiments on the non-pressure preservative method of fence post treatment by the South Carolina Experiment Station show that the average length of life of posts can be increased from one and one-half years to over eight years by this type of treatment. The placing of each end of a green post in a water-soluble salt solution and allowing it to soak up the solution is known as the "trough method." Because of the simplicity of this method of treatment, no special knowledge or equipment is necessary; all operations may be carried out with very little extra effort on the part of the farmer. Life expectancy of trough-treated posts is not as long as those treated by creosote or pentachloriphenal, but the low comparative cost and increased length of service are such that this method has a definite place in the farm treatment field.

At the present time, chromated zinc chloride is recommended for use with many varieties of wood. Two pounds of salt to a gallon of water results in a 20 percent solution, which is satisfactory for use when treating posts cut from common woods. Since zinc chloride salts absorb water from the air and tend to harden if exposed, the container in which the salt is placed should be kept tightly closed until ready for use. Possible corrosion of a metal container when mixing can be avoided by using a wooden barrel. Constant stirring of the solution with a paddle will expedite the mixing operation if the salt is lumpy.

Factors Determining Time to Treat

Some factors to be considered when planning the time to treat posts are insect control, season of most rapid treatment, and proper curing period.

There is no danger of insect infestation to standing trees in the case of hardwoods, but unless all tops and limbs from pines are cleaned up, cutting should be done between September and June. There is little danger of damage from pine tree beetles and other harmful insects between these months.

Comparison—Treated and Untreated—2 years

Results from the Connecticut Station indicate that hardwoods give best results when treated in the Spring. Pines treated in the Spring when the sap is rising absorb the solution at a more rapid rate than when treated at other seasons.

By S. P. YOUNG
Agricultural Engineering, '50

After treating, posts should be allowed to season for a period of at least 60 days. Experiments show that posts seasoned for this length of time give longer life than those set into the ground immediately after treating. Posts should be treated within two weeks after cutting. No special care in stacking is necessary unless insects are active at the time, in which case the posts should be stacked in such a manner as to insure adequate ventilation of all posts.

Common pine, yellow poplar, sweetgum, and American sycamore will treat well. Black oak, blackjack oak, and black willows give satisfactory results after treating by the trough method, but white hickory is not adapted to this method and should not be used.

Smaller posts are lighter, easier to handle, and require less preservative; therefore, posts to be used as line posts should be from three to five inches in diameter. In order to withstand the greater stresses on the end, gate, and corner positions, posts to be placed at these points should be from six to ten inches in diameter. Line posts should be seven feet long; all other posts should be eight feet or longer.

How to Treat

Two quarts of solution to each cubic foot of wood should be used. Since a post seven feet long and five inches in diameter contains approximately a cubic foot of wood, each post requires roughly two quarts of solution.

Before placing posts in the solution, saw an inch from the basal end to remove any tar or mud which may have accumulated there during handling. The first end treated is the basal end, and it should remain upright in the solution for four days. Exposure to the weather is not harmful to treated posts; drying is more rapid in the open.

When zinc chloride is used as a preservative, longer periods of air-drying are definitely advantageous. Of the Shortleaf Pine posts air-dried 90 days, only 6.7 percent have failed and 66.6 percent can be classed as good after eight years. Those set immediately after treating show 53.3 percent failed and 26.6 percent in good condition. Longleaf pine responds even better, and all of this variety treated with zinc chloride are still in good condition after eight years.

The cost of the preservative used in this method varies from ten to thirty cents per post, depending on the size. Peeling of the posts is unnecessary, which materially reduces the handling costs.

BETWEEN

Seniors Complete Inspection Trip

Eleven dairy seniors recently completed an inspection trip which included visits to the USDA's Bureau of Dairy Industry laboratory at Beltsville, Md.; the University of Maryland's dairy department and farm at College Park, Md.; and some of the largest commercial milk processing plants at Richmond, Va.

The eleven touring seniors were accompanied by Prof. J. P. LaMaster, head of the Clemson Dairy Department on the trip, which is sponsored annually for seniors majoring in dairying. The group left Clemson on April 23rd and returned four days later, on April 27th.

Those seniors making the trip were: Ernest L. Corley, Albert T. Gilpin, Jack C. Hart, Graham E. Hawkins, Jr., Ernest W. Lee, Sam E. McGregor, William McKay, Thomas H. Rainsford, Carroll S. Rowell, Charles K. Watson, and Henry H. Whittaker.

Alpha Zeta Elects S. P. Young

At a recent meeting of the Alpha Zeta, honorary agriculture fraternity, S. P. Young of Dalzel was elected Chancellor, replacing S. E. McGregor. Others elected were: W. B. Boykin, Censor; A. F. Busby, Scribe; R. S. McCants, Treasurer; E. Chamness, Chronicler; and W. P. Law, Faculty Advisor. Retiring officers were: W. McKay, Censor; A. W. Snell, Scribe; F. L. Fitz Simmons, Treasurer; E. L. Corley, Chronicler; and Dr. G. H. Armstrong, Faculty Advisor.

Alpha Tau Alpha Award

M. M. Harrison, VAE senior of Pelzer, was awarded the ATA Scholarship Award that is given each year to the senior graduating during the year that has the highest grade point accumulated during his stay at Clemson. This is the second year the award has been given.

The first medal was won by J. T. Black, present teacher of agriculture in the Greenville city schools. By donating the honor award Alpha Tau Alpha hopes to encourage scholarship among the members of the student body that are enrolled in the School of Agricultural Education.

International Conference Be Held At Clemson

The first annual meeting of the International Sesame Conference will be held at Clemson on August 15-16, 1949. The object of this conference is to bring together sesame workers from all parts of the world to discuss fundamental problems related to this crop, which is an important economic crop in many countries. Dr. Pinto Salvatierra, Secretary of Agriculture for Venezuela, and numerous other distinguished visitors from foreign countries as well as USDA officials and delegates from the various state experiment stations interested in sesame research are expected to attend. Dr. R. F. Poole, President of Clemson College, and Dr. H. P. Cooper, Director of the South Carolina Experiment Station, will welcome the visitors.

Sesame, or Benne as it is often called, has been found highly adaptable to South Carolina conditions and extensive research and breeding work is being carried on at Clemson by J. A. Martin, Associate Horticulturist with the Experiment Station, who is regarded as one of the foremost authorities on sesame. The location of this worldwide meeting at Clemson is another step forward in establishing sesame as a stable cash crop for South Carolina farmers and in supplying the oilseed industry with a new domestic crop of high oil content.

Prof. Law To Research—Prof. Rogers Replaces

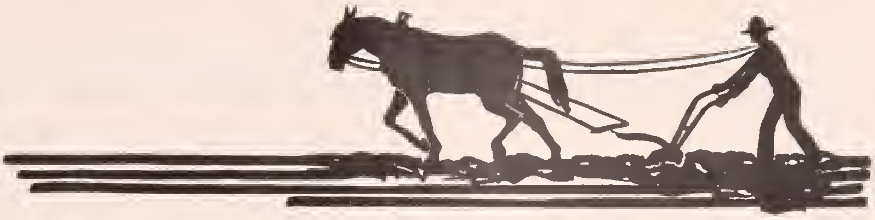
W. P. Law, Associate Professor of Agricultural Engineering, will transfer to full-time research work with the South Carolina Experiment Station on July 1. He will work on irrigation projects and other experiments in the agricultural engineering field in his new capacity.

E. B. Rogers, Assistant Professor of Agricultural Engineering, will replace Prof. Law on the teaching staff.

Dr. Ferrier Attending Marketing Congress

Dr. W. T. Ferrier, Professor of Agricultural Economics, is attending the Cotton Marketing Congress being held at Lake Petit Jan in Arkansas. The Congress is composed of a group of Southern marketing specialists.

E FURROWS



Dr. George H. Wise

Dr Wise Heads N. C. State Animal Nutrition Dept.

Dr. George H. Wise (above), a native of Saluda, S. C., has been appointed head of the Animal Nutrition Department of North Carolina State College, it was announced April 1, by college officials. He is dairying graduate of Clemson College in the Class of 1920, and received his PhD. degree in animal nutrition from the University of Minnesota. Before accepting his new position, Dr. Wise was a member of the dairy research staff at Iowa State College, Ames, Iowa, and was formerly employed by the South Carolina Experiment Station at Clemson. Last year he received a national award of $1,000 presented by the American Dairy Science Association for the most outstanding work in the field of dairy research.

Ag. Boys Make Phi Kappa Pi

Four agriculture students were recently elected to Phi Kappa Pi, a national honor scholarship fraternity. Those elected were: P. L. Benfield, agriculture engineering senior of York; M. M. Harrison, vocational senior of Williston; and S. P. Young, agricultural engineering senior of Dalzel.

Dr. Barre to Return

Dr. H. W. Barre, former Dean of the Clemson School of Agriculture and Director of the South Carolina Experiment Station, plans to return to Clemson to live when he retires July 1. A Clemson alumnus of '04, Dr. Barre has worked with the USDA as Head of the Division of Cotton and other Fiber Crops and Diseases since he left Clemson in July, 1934.

Sibley Wins Trip

Winston H. Sibley, animal husbandry sophomore of Greenville, has been granted the sophomore scholarship award of the Sears Roebuck Foundation. He will be given an all-exepnse trip to Chicago on May 22 where he will compete with students from 47 other land grant colleges for three national award given by the Sears Roebuck Foundation.

Sibley has accumulated a grade point ratio of 8.51 which is truly an outstanding accomplishment. The young Greenvillian will be accompanied on this trip by Dr. H. P. Cooper, Dean of the School of Agriculture.

Judging Team Selected

Five regular members and two alternates were selected for the Clemson Livestock Juding team in an elimination held the afternoon of April 19. Those selected were R. S. McCants, T. A. Warren, F. L. Cox, C. K. McRae, and R. E. Warner. Alternates are J. C. Bloxham and I. J. Adams.

Alpha Tau Alpha Banquets

Thirty-six members of the Kappa Chapter of Alpha Tau Alpha and their guests feasted at Seigler's Steak House in Walhalla Tuesday night May 2, at their semi-annual steak supper. Dr. G. H. Aull delivered the main address of the evening.

President Bud Rallings introduced the new officers of the chapter which are headed by J. C. Hammond, president. Rallings gave a brief word of welcome to the guests and gave the incoming officers their charge of office.

The Agrarian

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WILLIAM BARRE AULL

MARCH 24, 1887 APRIL 16, 1949

Vice-Dean School of Agriculture

Professor of Bacteriology

TEACHER -:- COUNSELOR -:- FRIEND

A Clemsonian — First — Last — Always

Agrarian Philosophy

By

The Editor

Crystal Grazing by a Bathtub Optimist

Look! Look! — for the love of the good earth and the health of your spirits, look dead ahead of the good ship "SCA (South Carolina Agriculture) FUTURE" and glass the horizon with a vivid imagination for fair weather and smooth sailing.

The scuttlebut is flying from all sides about the rough channel into the Bay of Security — about Depression Point, Surplus Sandbar, Unemployment Reef, Marketless Rock and other points likely to shipwreck the "SCA FUTURE." I'm just a boot cabin boy aboard, so pardon me while I go below to my bilge suite — hoist the Jolly Roger over my hammock — and proceed to mutiny against the fear mongers.

It looks to me like a heap less talk and a scad more work 'a battening down the hatches of faith and hope and securing the lines of opportunity around the stanchions of stickability would come a darn sight nearer to preparing us for whatever rough sailing there is ahead. Since I'm still a boot, guess I'd better do this mutiny up in a landlubberish sorta' way. Fetch me my soap box and crystal ball and I'll proceed to orate.

People who spend their time worrying about gloomy things that can happen instead of doing their all to see that the best possible things will come about are pretty far gone down the road to fear and insecurity. Sure, there **can** be rough times ahead for South Carolina agriculturists — just as a roof **can** leak if it isn't kept in proper repair.

In many respects, our farmers have decided advantages over those of many other regions of the nation. We have a mild climate which gives us a relatively long frost-free growing season and by way of comparison we have abundant rainfall. New cash crops are constantly being introduced and new rotation schedules worked out which can easily serve along with the long growing season as a profitable means of putting our eggs in more than one basket.

All phases of this business of farming are continually under the objective scrutiny of analysis and experimentation. Quicker, cheaper and easier ways to perform the multiplicity of farm operations are important points that well occupy the time of numerous trained investigators and are being used by progressive farmers to good advantage.

New processing and storage techniques can help immensely in solving difficult phases of the marketing problem and at the same time provide the farm family with a better balanced home grown diet the year round. The ever increasing mechanization of our farms is taking much of the drudgery out of farm work and greatly expanding the production possibilities of the farm family.

The varied types of farming enterprises within the state give each agriculturist advantage par none to put his own special abilities and interests to best use. Relatively new fields opening up—irrigation, oil crops, aromatic tobacco, new industrial uses for agricultural residues, and others—offer enterprising South Carolinians a chance to secure their own future while helping to do the same for their state.

The remarkable postwar industrial expansion within our state offers new markets for farm products and possibly part time employment for farm family members — and is not, as some people seem to think, an omen of declining importance of agricultural enterprises. South Carolina has always been a great agricultural state — and can and will remain so alongside a welcomed and much needed industrial expansion. Agriculture and industry can well serve the state to mutual advantage; the days of one-sided economy have long since past for progressive communities.

If there is any one great limiting factor to agriculture in South Carolina it is the marketing of our farm products. It isn't all of the answer, but the quicker our agriculturally minded citizens accept the importance and spirit of co-operative effort the sooner our marketing problem will assume smaller proportions.

That's enough of a spiel for awhile; 'cept I almost forgot to tell you who's skipper of the "SCA FUTURE." Well sir, he's a fine 'un — men and a lot of other bilge rats have got a lotta' faith in him. He's YOU!! Yep, YOU!

Why? Well, it's this way — you're pretty interested in the "SCA FUTURE," else you wouldn't have read this far through this messa' words. Right? And isn't the interested crewman the one most likely to become skipper? Anchors aweigh Skipper — we're with you — set sail for that Bay of Security and never fear the rough channel, we'll navigate her fine.

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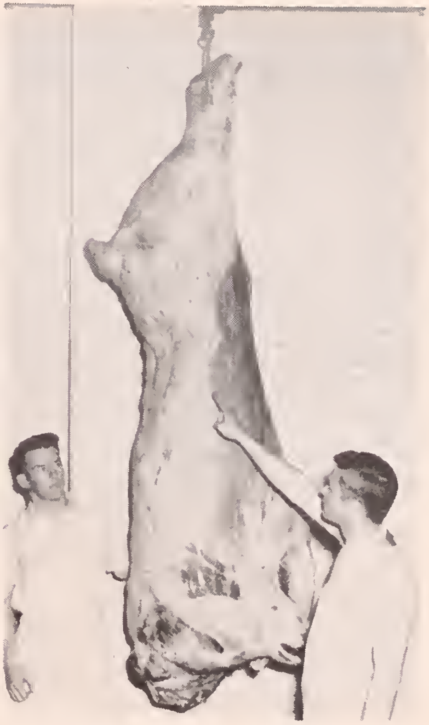

Choice Fat Steer —— Yields —— Carcass Showing High Degree of Finish

On March 16 the Animal Husbandry Department of Clemson College purchased five steers at the Anderson Fat Stock Show. Fed by 4-H Club members of Anderson and Oconee counties these steers ranged in weight from 825 to 1130 pounds on foot, were well finished and graded **choice** by the official judge. The purchase price ranged from 24.75 to 26.25 cents per pound, and the dressing percentage averaged about 60 percent.

The main idea behind this purchase was to give the students majoring in Animal Husbandry an opportunity to judge and observe a class of fat steers. This purpose was carried out very well by the members of the faculty and the students benefitted in many ways from the program — as they had a chance to follow the steers on foot through to the carcasses and on to the market cuts of meat. Approximately 125 students from various classes had the opportunity to judge the steers prior to slaughter. Afterwards students of the Animal Husbandry Department slaughtered the steers and cut them into retail cuts for observation and discussion. The steer shown in these pictures was purchased by the Clemson Infirmary.

By T. A. Warren, Jr.
Animal Husbandry '50

(continued on page twenty-three)

Round Steak and Sirloin

Drool Away — Unless You're a Vegetarian!!

CONVENTION BANQUET FEATURES "ALL-S.C." MENU

Independent eaters of good food—that's what South Carolinians are!!

The entire menu of the banquet held during the annual meeting of the South Carolina Frozen Food Association at Columbia on May 12-13 was made up of South Carolina grown foods—with the exception of the coffee, which naturally came from our good neighbor to the south, Brazil.

Shrimp, lettuce, ham, lima beans, asparagus, biscuits, and the ever-tasty combination of strawberries and shortcake were among the gallant soldiers of good nutrition from over the state who fought a losing battle against the hearty appetites of the hundred-odd delegates to the convention. Clemson College's contribution to the cause — cottage cheese, spiced peaches, and butter—met the same defeat of delightful consumption.

Clemson was also represented at the convention by L. O. Van Blaricom, Associate Prof. of Horticultural Manufactures, and R. F. Wheeler, Prof. of Animal Husbandry.

Columbia's Mayor Frank C. Owens welcomed the convention and Gov. J. Strom Thurmond addressed the delegates on the importance of their industry to South Carolina. The main address was given by John L. Hoppe, Editor of Locker Management.

"Meat Curing and Storage Experiments at Clemson" was the subject of an address by Prof. Wheeler. Prof. Van Blaricom was elected Horticulture Consultant to the association for the third consective year and Prof. Wheeler was elected Animal Husbandry Consultant.

SNAPPY COMEBACK

A minister, rather noted for his close calculations, also operated a small farm in Vermont.

One day he observed his hired man sitting idly by the plow, as his horses took a needed rest. This rather shocked the good man's sense of economy. After all, he was paying him 75 cents an hour. So he said, gently but reproachfully, "John, wouldn't it be a good plan for you to have a pair of shears and be trimming these bushes while the horses rest?"

"That it would," replied John agreeably. "And might I suggest, your reverence, that you take a peck of potatoes into the pulpit and peel 'em during the anthem."

SMALL FAVOR

They're reviving the one about the midwest football coach who was collared by an angry rooter after losing a game by a big score. "How many students are enrolled in this University?" asked the old grad, with deceptive politeness. "Seventeen thousand," replied the coach. "Is it too much to ask to have two of them in front of the ball carrier?" snarled the alumnus.

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Summer Camps — Recreation and Education for FFA Boys

FARMERS OF TOMORROW LEARN THEIR STATE TODAY —WHILE VACATIONING

Clemson Seniors Visiting Murrells Inlet FFA Camp

Realizing the need for some form of recreation and pleasure for the F.F.A. boys of South Carolina during the summer months, several camps have been established throughout the state, which are namely: Tamassee, Blufton, Columbia, and Murrells Inlet. Noting the location of these camps, one can see that they are so distributed over the state that the boys from the coastal plains can camp in the mountains and the boys in the piedmont can camp at the beach. This way of camping serves as a good means by which the boys may see and learn more about their state.

Bluffton FFA Camp

The camping program consists of various activities such as: visits to experiment stations, woodpulp mills, meat packing plants; historical places; boating, fishing, games of various kinds, mountain climbing, swimming, and others. These activities shape into a well organized camp program for a week of real pleasure for the boys.

By FRANK M. HART
Agricultural Education 1949

Over two-hundred F.F.A. chapters attend camp each year. Each chapter starts planning its camping trip well in advance. This makes it possible for the different chapters to make reservations early and then the finer details can be worked out more easily.

Each chapter usually has a plan in which to finance the trip. A finance committee may outline plans for securing the necessary funds or some other way may be used.

The camps are open from June first until September first, and each chapter spends a week at camp. There are from two to four chapters at each camp every week. Inner-squad games and other activities brings about a general understanding and friendship between the different chapters.

Most of the boys take an educational tour to and from camp. This is done by planning such trips. Visiting outstanding farms, industrial plants, and other points of interest adds another highlight to a very pleasant week.

FOLLOWING THROUGH

(continued from page twenty-one)

most beneficial and practical project. The students who participated have the same opinion, and we are looking forward to more work of this nature in the Animal Husbandry Department.

The pictures with this article tell a story that need not be put into words — the story of a new and expanding industry in South Carolina and the south as a whole. The degree of finish and marbling of fat with lean shown on the carcass and in the steaks in these pictures respectively, is second to none. This is the type of beef that South Carolina is capable of producing. During the past ten years the south has made great steps forward and beef cattle production has certainly been one of the stepping stones. We in the South have been blessed with a climate that permits almost a year-round grazing period; this indeel is a large advantage over many beef producing areas of the United States. Why not turn the brown, barren fields of winter into a green blanket of forage dotted with beef cattle for South Carolina?

Beef cattle have an important part to play in the growing industry of the south, and nothing will prevent them from taking their place. Those foresighted people who take the advantages offered them and use good management will be leaders in this progressing industry. Think it over. How far can you see?

TOO MANY STOPS

Last night when all the stars were lit,
Pa went out to stroll a bit.
When Pa came home, Ma had a fit,
The stars were out but Pa was lit.

BIG DIFFERENCE

Oliver Wendell Holmes once mistook an insane asylum for a college. Realizing his mistake, he explained to the gatekeeper, and commented humorously, "I suppose, after all, there is not a great deal of difference."

"Oh, yes, there is," replied the guard; "in this place you must show some improvement before you can get out."

FERN GUERNSEY FAMILY

(continued from page seven)

Daughter - dam comparisons have been made on the 2 times a day milking 305 day mature equivalent basis for 3 of the 5 foundation sires and all of them have shown plus values.

In addition to the 5 foundation herd sires, 12 bulls bred in the Appin herd from the Fern Family have been used with marked success since 1920. Five of these were sons of Fern of Glenville; 4 sons of Appin's Lady Williams; 2 sons of Little Fern of Appin, a daughter of Fern of Glenville; and 1 was a son of Appin's Fern another daughter of Fern of Glenville. Each of these 12 Fern bulls were sired by one of the original 5 foundation herd sires.

Fern's Raider of Appin, the most famous of the Fern bulls, was used throughout his life in the Appin herd. He has 30 tested daughters, 25 of these from tested dams show plus production. Dr. R. B. Becker of the University of Florida has made an extensive study of the length of time dairy bulls are fertile. His data indicate that Fern's Raider of Appin was fertile to 19.09 years of age. This is the most advanced age on record in the United States for a fertile bull of the dairy breeds.

Fern's Raider of Appin
on his 19th birthday

The Appin herd of 31 females, all home bred in the Fern family, was type classified January 5, 1949 with overall ratings of 2 Excellent, 11 Very Good, 8 Desirable, 9 Acceptable, an 1 Fair. In the detailed breakdown there were 50 Excellent, 126 Very Good, 93 Desirable, 52 Acceptable, 18 Fair, and 2 Poor ratings. Seventy nine percent of these detailed ratings were in the most useful classes of Excellent, Very Good, and Desirable.

The Clemson Dairy Department has been trying since 1938 to get a foundation of the Fern Family of Guernseys. A suspicious Bangs test stopped one opportunity, efforts to breed bulls for Clemson turned out to be heifers, the money was not available at one time and later Mr. McCall refused to part with a bull he had especially bred for his own herd.

In February 1949 Mr. McCall decided to reduce the Appin Farm herd of over one hundred Guernseys to twenty-five head because of local labor conditions. The Dairy Department was advised of this situation and an offer made to sell members of the Fern Family to Clemson. On March 25, 1949, Professor J. P. LaMaster, Mr. Graydon W. Brandt, and Mr. Carroll C. Brannon visited Appin Farm. Five cows and two bulls were selected. Mr. McCall made possible the purchase of these cattle by setting very reasonable prices because of his interest in the Clemson Regional Dairy Cattle Breeding Research Project.

The five females purchased were: (1) Appin's Hattie now in her fifteenth year, classified Excellent 1949, record 10,517 pounds of milk, 507 pounds of butterfat in GG. She was sired by Winston Farms Glory Boy and her dam is a daughter of Appin's Lady Williams sired by a son of Fern of Glenville. (2) Appin's Lass, eleven years of age, classified Excellent 1949, record 12,052 pounds milk, 579 pounds butterfat in class A. She was sired by Fern's Raider of Appin and her dam traces two times to Appin's Lady Williams and three to Fern of Glenville. (3) Appin's Levonia, eleven years old, classified Very Good 1949, record 11,758 pounds milk, 630 pounds butterfat in class DD. Her sire is a son of Appin's Lady Williams and her dam is a granddaughter of Little Fern of Appin. (4) Appin's Little Fern, eleven years of age, classified Desirable 1949, record 12,439 pounds milk, 577 pounds butterfat in class AA. She was sired by Argilla Forecaster and her dam is Little Fern of Appin. (5) Appin's Ofern, eight years old, classified Desirable 1949, record 10,105 milk, 51 butterfat in class A, sired by Argilla Forecaster out of Appin's Fern.

The three bulls of the Fern Family now at Clemson are Appin's Main Stay, a ten year old proved plus double grandson of Fern of Glenville having been sired by her son Fern's Raider of Appin out of her daughter Appin's Fern; Appin's Token, a three year old, by a son of Appin's Lady Williams out of Appin's Fern; and Appin's Trumpeter, a two year old, sired by Appin's Holden (a son of Little Fern of Appin) and his dam is Appin's Lass one of the Excellent cows in this purchase.

Longevity is an outstanding characteristic of the Fern family. Appin's Main Stay's sire, Fern's Raider of Appin, was fertile to past 19 years of age and his dam Appin's Fern had her last calf, Appin's Token, when she was 18 years 4 months and 16 days of age. Main Stay was 10 years old March 23, 1949 and is in excellent physical condition and breeding well. Appin's Little Fern dropped a bull calf by him at Clemson May 3, 1949, Appin's Lass has been pronounced in calf to him since October 3, 1948, Appin's Levonia since October 28, 1948 and Appin's Hattie is apparently in calf to his February 14, 1949 service.

The Bureau of Dairy Industry, United States Department of Agriculture, is cooperating with the Clemson Dairy Department in the Regional Dairy Cattle Breeding Research Project and is paying for Appin's Main Stay and Appin's Trumpeter for use in this work.

Thanks to the cooperation of Mr. McCall, top representatives of the Fern Guernsey Family are now at Clemson to provide a thirty year start in the research program designed to develop better dairy cattle for the South.

OLDER AND WISER

Our tastes change as we mature. Little girls like painted dolls; little boys like soldiers. When they grow up, girls like the soldiers and the boys go for the painted dolls.

INSIDE STORY OF THE ROLLED BALE

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COLD WEATHER DEALS BLOW TO 1949 PEACH CROP

April 17 Struck The Last Blow

Current prospects are for less than 25 percent of a normal South Carolina peach crop this summer, according to latest estimates. Cold damage has been so severe that the entire southeastern peach producing region has one of the smallest crops in prospect during recent years.

Last February it was predicted that South Carolina would produce over six and a half million bushels of peaches. However, since then five different periods of freezing temperatures have steadily reduced the prospects for a peach crop. The first injury occurred on January 30, but only a few buds were damaged. However, on March 10 about 10 percent of the buds were killed. Further cold spells on March 16, 18 and 19, and estimates of the total crop dropped to only 40 percent of normal.

By HENRY SIMONS
Experiment Station Editor

The heavy frost and sub-freezing temperatures on April 17 struck the last blow. Practically every section of South Carolina where peaches are grown was damaged to some extent. At Clemson practically the entire remaining crop was wiped out, and temperatures as low as 28 degrees F. were recorded, according to Mr. A. M. Musser, head of the Clemson Horticulture Department.

Even present estimates of the peach crop are only tentative, because some small peaches are dropping from trees due to poor pollination and other factors. Those areas of the Sandhill peach growing section where cold damage was relatively light are now faced with another problem. Delayed dormancy has occurred because of an insufficient number of hours of chilling temperatures to break the rest period of the trees. Some peach trees in the Sandhill area simultaneously had unopened flower buds, blossoms and small peaches up to one-half inch in diameter, all on the same limb.

The peach crop situation in North Carolina and Georgia is not very encouraging either, reports Roy Feree, Clemson extension horticulturist. Delayed dormancy in the Fort Valley, Georgia, area threatens practically the entire crop and about the only variety which is expected to produce a fairly good crop is the Hiley. Central Georgia peach prospects have been reduced to some extent by the cold damage and the latest information from the North Georgia area indicates very heavy damage to the remaining crop from frost on Easter morning.

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CLARK LINDSAY McCASLAN AWARD ESTABLISHED

An award to be given annually on Honor's Day to the student in the Department of Agricultural Engineering deemed the most deserving in the opinion of the Agricultural Engineering faculty was recently established at Clemson. The award will consist of the income from a $1,000 fund donated by Mrs. Clark Lindsay McCaslan in memory of her late husband who was a Clemson graduate of '08 and a pioneer in Agricultural Engineering. Mrs. McCaslan also made an additional $25.00 available so that the first presentation of the award could be made on Honor's Day of this year.

Mr. McCaslan was Extension Specialist in Agricultural Engineering at North Carolina State College at the time of his death last June 24.

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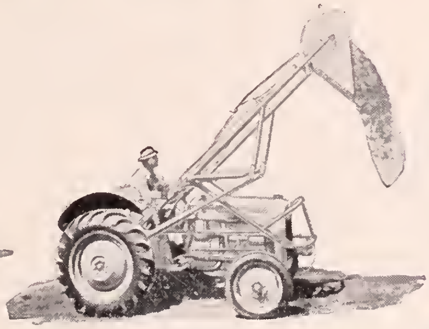

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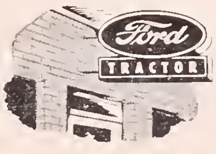

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LIGHTER SHADES OF COLLEGE LIFE

Yea, we know, you thought this column was a thing of the past. Someone lowered the boom on us last month and we had a heck of a time ever getting back into print. It seems that we stepped on some very important toes in our last "Shades" and were banned. "It doesn't contribute a thing to agriculture," they screamed in our ears. Our argument was, neither did Tennyson, but a lot of Ag boys have become familiar with that noble gentleman of verse.

Someone spiked the tea on our table at the Junior-Senior banquet and it all seems sorta' hazy. Remember seeing "Boo" Lachicotte under one of the tables. It seems that "The Drake" had given him a "hot foot" and he was ah' huntin' the scoundrel. What excuses some people won't think of to avoid embarassment. All kiddin' aside, it was a wonderful affair. Doc Roberts and company are certainly to be congratulated. Taps Ball was also a fine affair. The C.D.A. really went all out for this one. Next year maybe a new system of getting good bands will be devised and we can have more than one name band a semester.

Prof. Jim Cook looked very much like the boy with the green hair several weeks ago when he left his Monday afternoon lab. An afternoon among the cattle certainly proved disasterous for him. He looks so neat each morning at eight o'clock. It was really very hard to believe, but we saw it with our own peepers.

"Nose" Gilliam has had steak for supper every Friday night since this semester began. Could this possibly have anything to do with the meats lab he has on Friday? Won't Professor Wheeler be glad to read this!!!

Some bright person thinks this years "Taps" should be called "Careless Hands". We think an appropriate name for the "Bobbin and Beaker" would be "The Mill Hand's Leaf". This was meant directly as a slur. We undestand some of the Textile boys were instrumental in this magazine being called "The Plough-Boy Journal" in the "'49 Taps".

Last time "The Agrarian" ran this column, we had conducted a poll to determine which girls' school was the favorite with Clemson men. Since then, we have read where Winthrop, Anderson, Coker, Limestone and Carolina girls have picked Clemson men as their favorite male spruces. Ain't we got any friends at Converse?

With that choice little tidbit, we'd like to conclude our socalled writings for this year. These seniors that are graduating certainly will be missed. How can anyone stay here four years and then want to leave—Haw!!!! Imagine if you're at the beach very much this summer you'll certainly kick one or two while walking in the sands. Clemson men have a way of doing that—taking life easy. Good luck to all of you.

Father (speaking to prospective): "The man who gets my daughter will get a prize."

Prospect: "May I see it, please?"

QUESTIONS

A Diverse in prominence, yet alike in taste,
On each an apostle his name has placed.

B Enclosed by two comparatives of "mellow"
Unscramble "chum", here underlined in yellow.

C Where the Amazon and rubber meet you locate me,
Hood, McKinley or Rainier completes my picture, see?

Answers and names of winners will be available at magazine office. Winners will be notified by mail.

Chesterfield

RULES FOR CHESTERFIELD HUMOR MAGAZINE CONTEST

1. Identify the 3 subjects in back cover ad. All clues are in ad.
2. Submit answers on Chesterfield wrapper or reasonable facsimile to this publication office.
3. First ten correct answers win one carton of Chesterfield Cigarettes each.
4. Enter as many as you like, but one Chesterfield wrapper or facsimile must accompany each entry.
5. Contest closes midnight, one week after this issue's publication date.
6. All answers become the property of Chesterfield.
7. Decision of judges will be final.

LAST MONTH'S ANSWERS & WINNERS

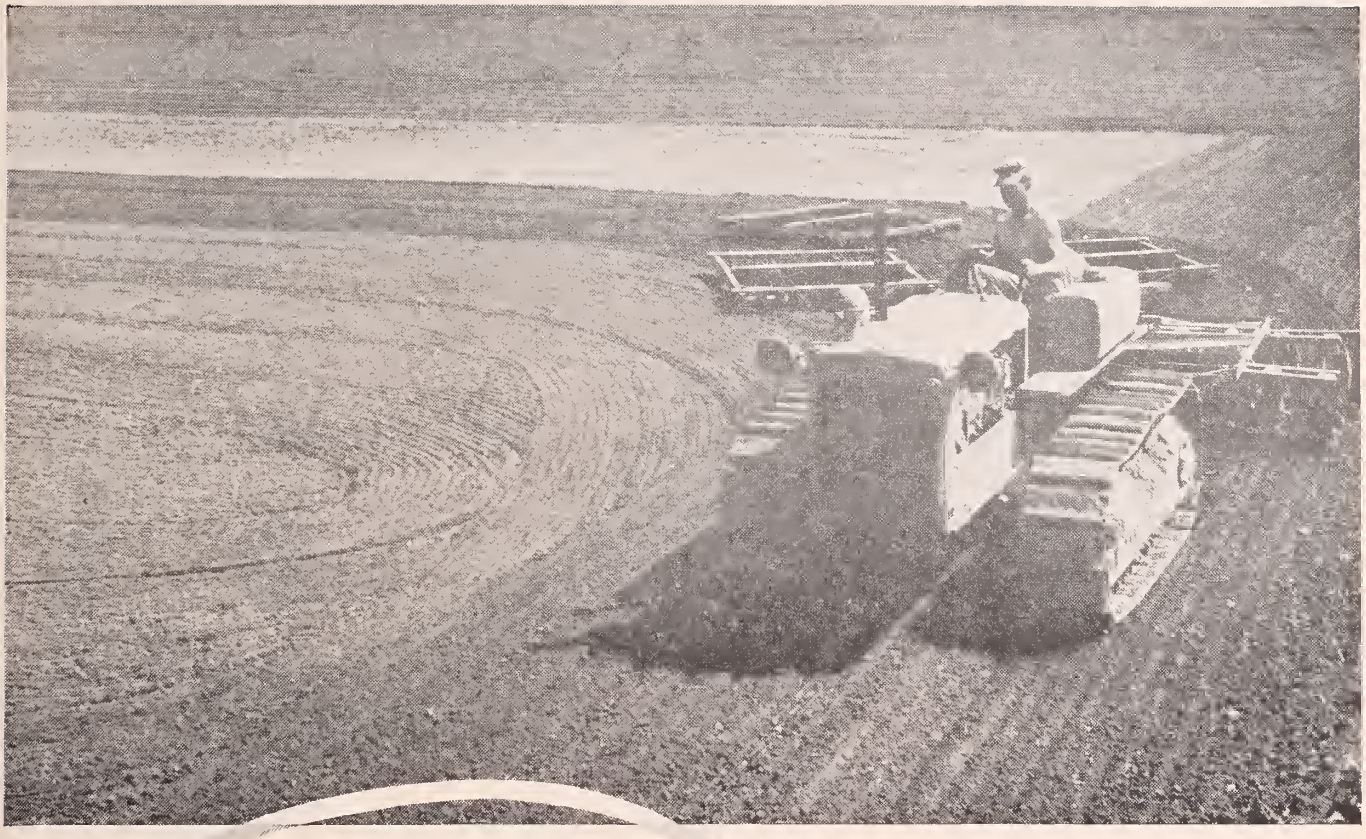
A The word "milder" appears twice in the ad in red letters, and the word "mild" (two-thirds of "milder") appears in white letters. They all explain why Chesterfield is right.

B Four eyes (Darnell's and Griffin's) are the same in color and shape, but not in fame, since Linda Darnell's are much more famous.

C The pearl earrings worn by Linda Darnell.
WINNERS...

F. M. Perry, H. L. Hance, S. S. Harrell, S. R. Penn, S. J. Grant, J. D. Skerratt, J. G. Peeler, W. T. Ashley, T. L. Charles, and W. C. Talbert.

Up and at 'em boys—read the questions; figure them out; call in your secretary to write down your answers; put on your track shoes and head for the second barracks. Watch out for the traffic jam at Room 2-202, cause that's where the winning entries are to be turned in.



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ESSOLUBE HD provides this protection in two ways:

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ESSO GEAR OIL—a high-quality oil that gives maximum protection to farm machinery gears.

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FARM PRODUCTS

ESSO STANDARD OIL COMPANY

RUSTS OF SMALL GRAINS

(continued from page eleven)

fungus produces five types of spores, each with a distinct function to perform. I will not attempt to give the complete details concerning the life of the rust organism here, although I shall mention a few conditions which favor the destructive outbreak of the disease. They are as follows: (1) large uniform acreages of susceptible wheat varieties; (2) presence of physiologic races of rust that will attack those varieties; (3) mild winters in the South; (4) a constant succession of humid, or rainy days and dewy nights as the crop matures in the spring; (5) cool temperatures; (6) rank, succulent growth of the crop; (7) late maturing crops which have longer exposure to the rust; (8) continuous south winds; (9) presence of barberry in northern areas. When these factors are combined with hot, dry conditions just before harvest, the greatest losses result.

The conditions favoring leaf rust are much the same as for stem rust except the leaf rust is adapted to cooler temperatures and has no relation to the barberry.

There are about four control measures which are very effective in controlling stem rust: (1) Resistant Varieties — Breeding for stem rust resistant varieties of wheat and other grains has largely centered in the northern states where stem rust is most destructive. This measure of control remains our most important means of fighting stem and leaf rusts but history shows us that breeding work is never finished. New resistant varieties will constantly be needed as new races of the rust become prevalent and the breeding of new varieties must be continued if this control measure is to remain successful. (2) Eradication of Barberry— This control is most important in the northern states where the new physiologic races of rust are the result of hybridization of older races during sexual reproduction of the rust which takes place on the barberry. (3) Agronomic Practices — Agronomic practices favoring stem rust control consist of avoiding low, undrained sites for grain crops, the use of early maturing varieties and the avoidance of excessive nitrogen fertilization. (4) Sulfur Dusing—It has been proved for a number of years that application of sulfur dust will control rusts, although early views were that this measure was impractical. Today these views are being reconscidered in view of the recent development of airplane duting. Experiments have shown that under conditions of heavy rust infestations the sulfur treatment has more than paid for itself in increased yields. At present the experimental evidence is not sufficient enough to justify recommending dusting as a general practice, but it is a desirable control measure in growing small plots of valuable grain for seed production or for show purposes.

All of the above statements also apply for the control of leaf rust except the eradication of barberry. This does not apply for the leaf rust because the barberry is not a host for the leaf fungus.

Grandfather admits chewing tobacco is a filthy habit, but defies anybody to prove that it ever started a fire.

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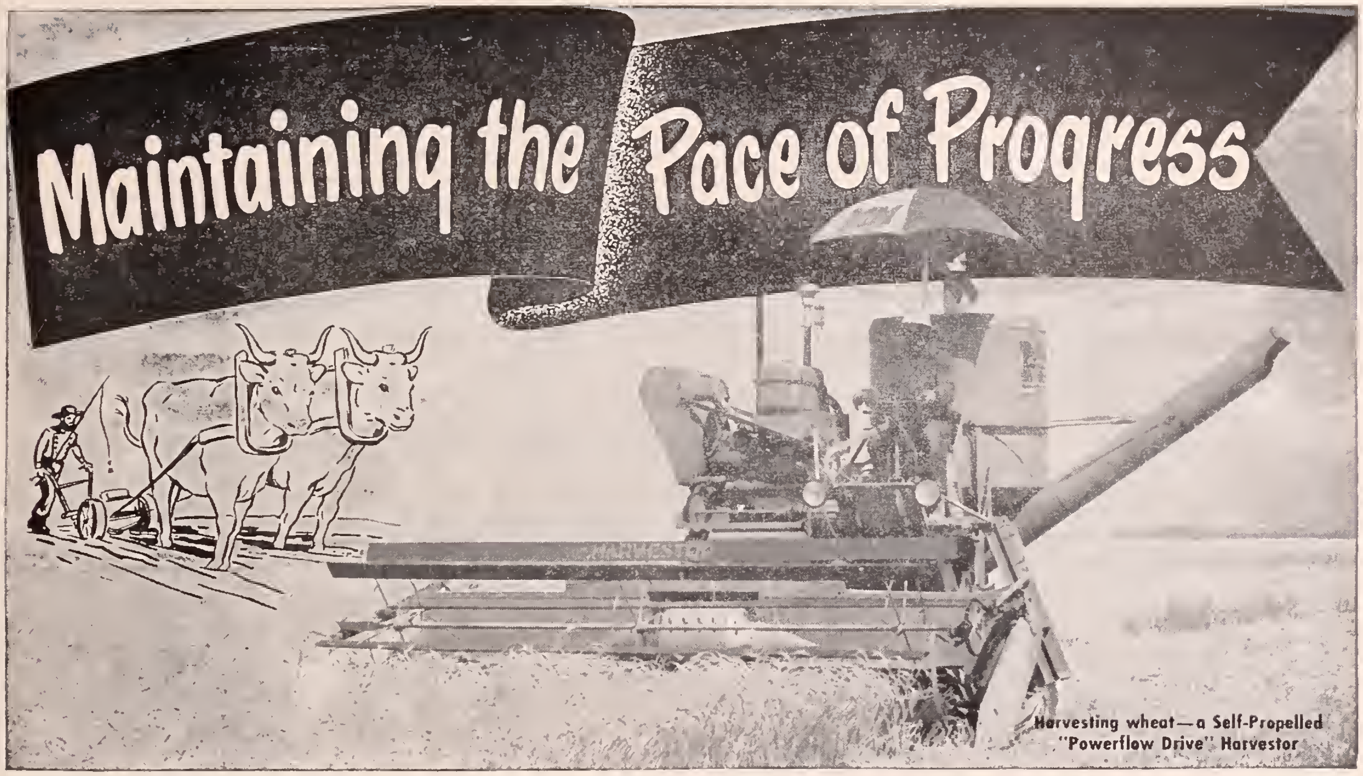
Maintaining the Pace of Progress

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Strengthening the Basis of Our Economy...

The American standard of living is a tangible monument to the progress of free men. In no other country, in any age, have people enjoyed all the rights, privileges and benefits which we in this country now take for granted. We can point with pride to the accomplishments of this great nation, but we must also accept these rights and benefits as a responsibility that none of us can shirk without inviting trouble.

The industry and ingenuity, the cooperation and teamwork of American labor and management, the American system of free enterprise—these things made possible our present standard of living, which is the *envy* of the world.

These qualities, or attributes, of the American way of life are secure to us and our posterity only as long as we continue to exercise vigilantly and diligently our responsibilities in a democracy. Elsewhere in the world, these responsibilities would not be considered a disagreeable obligation but a welcomed privilege. The exercise of our franchise to vote . . . the willingness to do more than is expected . . . the cooperativeness to give ground at personal sacrifice for the common good of all mankind . . . the ingenuity to overcome apparently insurmountable obstacles—these are but practical applications of the golden rule which will secure the continuation of the blessings of our free enterprise system and democracy.

We have many obligations to discharge if we are to maintain the pace of progress and strengthen the basis of our economy. We must conserve our natural resources so that our children and our children's children will not face want, social unrest, and an uncertain future.

Food, clothing and shelter are derived from the soil. Without these products of the soil, the wheels of industry would cease to turn; business would suffer; the economic welfare of the nation would deteriorate; and unemployment with its bitter consequences would again haunt many American homes.

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Cultivating checkrowed corn 4 rows at a time

THE FLOWERING DOGWOOD

Tiny Yellow Flowers In Large White Bracts

By THE MASTER GARDNER

The Flowering Dogwood is without equal among the showy early spring flowering trees. The tiny, yellow-clustered flowers are borne in May and are surrounded by four large white, blunt-ended bracts. (It is these bracts that many gardeners refer to as the flowers of the tree.) Then, in fall, the fruits ripen and become clusters of brilliant scarlet. Gorgeous leaf coloring adds to the fall beauty of the Dogwood.

Native from Massachusetts to Florida and west to Texas, the Flowering Dogwood is usually around 15 feet in height, though it does grow taller. It thrives in low, moist, fertile soils and prefers a soil with a pH of 6.0 to 6.5. It is a good move to incorporate peat moss or some other form of humus in the soil where it is growing. Good drainage is also essential for best growth.

Established trees may be fed in early spring—from the time frost is out of the ground until early May. Make holes two inches in diameter and 12 to 18 inches deep, in a zigzag fashion slightly inside and outside the branch spread. The holes can be made with a crowbar or earth auger. Fill the holes with a mixture of half complete plant food and half soil. Then water. Allow 3 pounds of plant food to each inch of trunk diameter, measuring the trunk 4 feet above the ground.

The Flowering Dogwood is best transplanted in spring. The width of the hole for balled-and-burlapped trees should be 2 feet wider than the soil ball, and as deep as it was where the tree was formerly located. Make allowance for proper drainage and settling. If you collect Dogwoods from the woods, pick out small seedlings, because large plants are difficult to transplant.

When planting, be sure and include complete plant food. The following table based on the size of the hole will serve as a guide:

1 foot in diameter—one-half ounce or one heaping teaspoonful.
2 feet in diameter—two ounces, or four heaping teaspoonfuls.
3 feet in diameter—four ounces, or one-half cup.
4 feet in diameter—eight ounces, or one-half pint.

Provide about 3 inches of loose soil in the bottom of the hole and mix one-half of the complete plant food with this soil. Mix the other half with the soil to be used in refilling the hole. Set in the tree and fill the hole. Leave the top layers of soil slightly concave and water thoroughly.

Another dogwood, the Pacific Dogwood, is excellent for Western areas. It is similar to the Flowering Dogwood, but there are certain marked differences. First it grows to a height of 75 feet. Also, the flowers are twice the size of those of the Flowering Dogwood and the bracts are not notched. There are usually six bracts although there are occasionally four or five.

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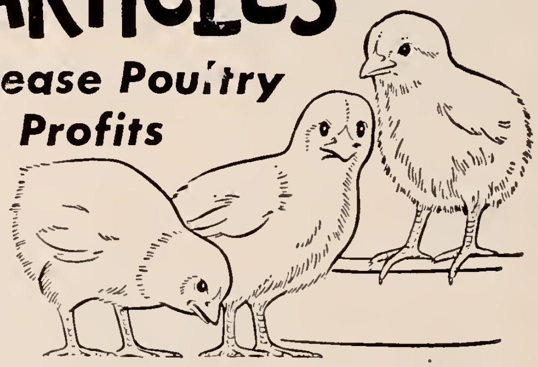

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For CHESTERFIELD CONTEST See Page 28

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The Agrarian

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November, 1949 Clemson, S. C.

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so good!
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CAMEL
CAMEL
TURKISH & DOMESTIC
BLEND
CIGARETTES
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The Agrarian

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Legends of Christmas Plants article, courtesy of Master Gardener, Swift & Company.

Pictures on pages 3, 6, 7, and 9, courtesy of B. K. Eargle, Clemson Extension Photographer.

COVER—Pasture Scene at Clemson. Photo by B. B. Smith, **Agrarian** Photographer.

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MINNEAPOLIS-MOLINE
MINNEAPOLIS 1, MINNESOTA

King Cotton, From India to America

HISTORICAL NOTES ON A HISTORY MAKING PLANT

Cotton is the backbone of Southern economy, yet few Southerners know whence it came. Actually no one else knows, but through piecing together fragments of history, we can get a fair picture of the origin of cotton.

The English word "Cotton", came from the Arabic word "gutun".

Ancient East

Archaeological excavators in northwestern India unearthed some fragments of cotton cloth and string that is believed to date back to 3000 B. C. The first reference of cotton in literature, so far as is known at present, is to be found in a Hindu hymn. This hymn was written fifteen centuries before Christ and mentions "thread in the loom", showing that cotton was already being used in weaving. Herodotus reported in 425 B. C. that there were trees growing wild in India. "The fruit of which is a wool exceeding in beauty and goodness that of sheep".

From references made to cotton by various early writers, it appears that not only did the Hindus grow cotton and use it in making cloth from ancient times, but that for 3000 years India was the center of the cotton industry.

The machinery used by the ancient Hindus in ginning, spinning, and weaving cotton was of the most primitive type. The gin was a small roller gin called Churka, consisting of two upright pieces between which were two horizontal rollers so set that they almost touched. Attached to one of these rollers was a crank. The cotton seed with lint attached was fed between the rollers on one side, the lint being caught by the rollers and passed on through, but the seed, being larger, could not pass and were thus separated from the lint. This gin type was practical only when using Sea Island or smooth-seeded varieties.

J. H. PITTS
Agronomy 1951

Cotton was introduced into China from India, but until about 1300 A. D., it was used only as an ornamental in their gardens.

Cortez in 1519, discovered that the inhabitants of Mexico posessed much knowledge and skill in cotton manufacture, and he sent an assortment of their goods to the King of Spain. Simultaneously cotton was found growing in Peru and Brazil by the early explorers.

Colonial South

The first attempt to grow cotton in the United States was in the Virginia colony in 1607, the year the colony was established. Cotton production was held in check in this colony by the extreme profitableness of tobacco culture. It took nearly a hundred years from that date before the plantations became of national importance, but the seat of the cotton industry gradually shifted South and West.

In the early part of the eighteenth century English woolen interests vigorously attacked their growing competitor, cotton. By an Act of 1720, the use and wear in England of printed, painted or dyed cottons was prohibited.

Cotton was raised in Georgia in 1734, from seed supplied from Chelsea, England by Philip Miller. These seed were the original stock of the better grades of the green-seeded plant now known as **Gossypium hirtum** or common upland cotton. In 1786, the green-seeded cotton was, in the states, the most largely grown of all kinds, but in that year, black-seeded or Sea Island cotton was introduced from the Bahamas into Georgia, and two years later its cultivation was attempted in South Carolina. There is no positive knowledge of Sea Island cotton being grown prior to this time. The staple of greatest value to the pioneer planter was doubtless a plant very similar to the upland cottons of today.

Prior to 1793 there were no satisfactory cotton gins in use in the colonies. Most of the lint was picked from the seed by hand, a very slow, laborious process. A man could pick off only one or two pounds of lint a day.

With the invention of Whitney's gin in 1793, a new era started in the cotton industry in America. The production, exports, and domestic consumption all increased with rapid strides following the introduction of this new labor-saving machine. Although the first mills were erected in New England, the first cotton mill in the South was built at Statesburg, S. C. Until 1815, only carding and spinning were done with power machines, the weaving being done on hand looms. Spinning and weaving in the home continued in the

New South

(continued on page sixteen)

LEGENDS OF CHRISTMAS PLANTS

The plants and flowers that are now one of the wonderful parts of the Christmas season are surrounded with legendss that give them interesting . . . . and as a full and deep meaning.

POINSETTA

A little Mexican waif on Christmas Eve had no gift to take to the Cathedral, so not wishing to enter empty-handed ,she picked a weed along the roadsside and climbed the steep path to the church. She knelt and laid her gift on the altar, and as she rose to go, she saw that the poor little weed was suddenly a beautiful Poinsetta or the Flor de la Nochebuena (Flower of the Nativity) as it is called in Mexico.

CHRISTMAS ROSE

The story behind the Christmas rose (Helleborus) is of ancient origin. Supposedly a young shepherd girl was weeping bitterly as she watched the Wise Men on their way to take gifts to the Christ Child. An angel appeared there in the early dawn with a shining light about her, and asked why was she crying. The little girl explained that she was poor and had no offering to give the Babe of Bethlehem. Hearing this, the angel with shining wings brushed the ground and it became carpeted with glistening white Christmas roses. The young girl quickly gathered great bunches of the beautiful flowers and hurried to the Christ Child. He smiled and touched his fingers to the white flowers and the petals became tinged with pink.

MISTLETOE

The story of Mistletoe, the plant that today is associated with the gay side of the Christmas season, was originally symbolic of serious and sacred matters. The white berries are said to be the radiance caught from the guiding star when the Wise Men made their gifts to the Christ Child. They symbolize purity and peace. According to Norse legend, the plant is sacred and must not touch the earth, hence our custom of hanging it high at Christmas. The monks of the monasteries termed it "The Wood of the Cross" and attributed to it ssupernatural powers. The Druids of ancient Britian made made the gathering of mistletoe a sacred ceremony. In Scandinavia the plant was so revered and cherished that it was thought that if enemies met beneath it in a forest, they disarmed and kept a truce until the next day.

HOLLY

The legends regarding the holly also date back to the Druids, who believed the evergreen leaves of the holly were proof that the sun never deserted it and it was therefore sacred. Legend also says that the Crown of Thorns was composed of holly, and that before the crucifixion the berries were white, but turned crimson, like drops of blood.

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Famous Platte Valley High Protein Alfalfa

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Shipments Direct from Source of Largest Alfalfa Producing Territory

POULTRY IMPROVEMENT IN SOUTH CAROLINA

FIFTY-ONE S. C. HATCHERIES FOLLOW NATIONAL PLAN

The National Poultry Improvement Plan, which became operative July 1, 1935 under the direction of the Bureau of Animal Industry, U.S-D.A., in cooperation with the state authorities for the improvement of poultry, poultry products, and hatcheries, was developed with a view to the establishment of the poultry-breeding industry on a sound basis. The objectives of the National Poultry Improvement Plan are to improve the breeding and production qualities of poultry and to reduce losses from pullorum disease. Actually the plan does much to afford protection from unscrupulous competition and enables purchasers to buy with more confidence. Acceptance of the plan is optional with states and individual members of the industry within the state. In this state the National Plan is administered by the South Carolina Poultry Improvement Association, which in 1949 included 51 hatcheries producing baby chicks and turkey poults, and more than 200 flock owners supplying hatching eggs.

By WILLIAM DERIEUX
Poultry, 1950

There are two divisions of the National Poultry Improvement Plan, namely, the breeding stages and the pullorum control and eradication classes. The four breeding stages of the plan are designated as U.S. Approved, U.S. Certified, U.S. Record of Performance and U.S. Register of Merit. Under the pullorum control program there are three classes, U. S. Pullorum Controlled, U.S. Pullorum Passed and U.S. Pullorum Clean.

To qualify as a U.S. Approved flock the females must be rigidly selected each year for constitutional vigor and physical characteristics of egg production combined with standards for the breed and variety. The males are selected for constitutional vigor and standard bred qualities. The selections are made by, or on approval of a state inspector or flock selecting agent. From such flocks U.S. Approved eggs are produced from which in turn are hatched U. S. Approved Chicks.

In U. S. Certified flocks the females are rigidly selected by the same standards as for U.S. Approved females, but the males in addition to rigid physical records of 200 or more eggs averaging 24 ozs. per dozen in their first laying year. Eggs from U.S. Certified flocks produced U.S. Certified chicks.

To meet the requirements for the U. S. Record of Performance breed-

(Continued on page 20)

TWA Announces

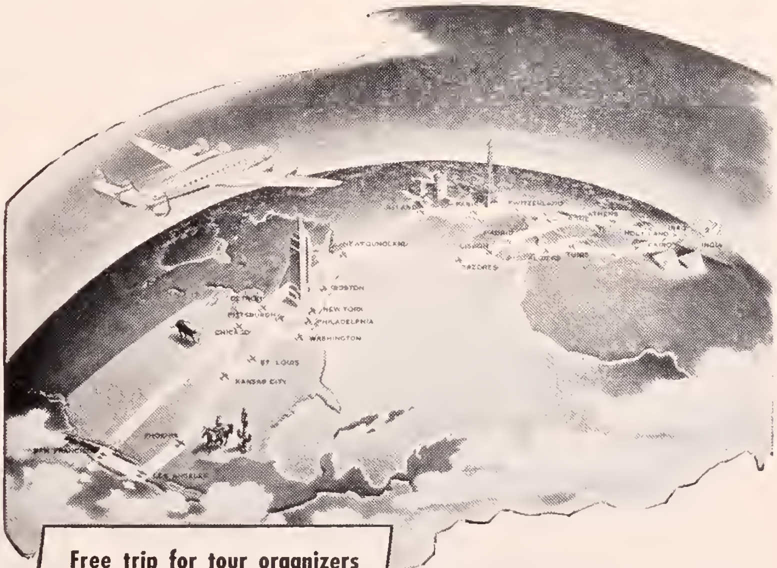
REDUCED OVERSEAS STUDENT FARES

35-50 per cent savings on TWA Skyliner trips abroad

Now, students from 12 through 21 planning to travel and study abroad can go by de luxe TWA Skyliner at big savings. Starting October 1, 1949, fare reductions of 35 per cent will be in effect for TWA round-trip ocean crossings. Once students arrive in Europe, they become eligible for a reduction up to 50 per cent for travel to and from distant points, even as far as Bombay. Tickets are good for one year.

Although fares are reduced, TWA's service stays at its consistently high level. You'll relax in your lounge seat, have tasty, full-course meals served you. And in a matter of hours you'll arrive at your destination, thanks to TWA 300-mph speed and dependability.

For details, contact your nearest TWA office, or your travel agent.



Free trip for tour organizers

TWA gives a full free ticket over its International routes to any person engaged in educational work who organizes and conducts a party of ten or more persons for an overseas tour. Persons may organize groups for university study abroad, or may secure ten or more enrollees to the International Youth Camps in Switzerland (ages 12-20). Call on your nearest travel agent for details.

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FARMERS' WEEK IN REVIEW

Who says farming isn't big business?

The monster takes a bite

By H. M. SIMMONS
Assistant Exp. Sta. Editor

These are some of the scenes which occurred during the 1949 Farmers' Week program at Clemson last August 22nd to 26th. An estimated six thousand visitors participated in the varied five-day program which featured over one hundred different speakers on agricultural and homemaking subjects.

Principal addresses were delivered by Governor J. Strom Thurmond, Senator Olin D. Johnston, Donald M. Hastings, Hastings Seed Company, Atlanta; Audley H. Ward, district extension agent, Aiken; Dr. H. P. Cooper, dean and director, S. C. Experiment Station; Mrs. Alonzo Pettys, co-publisher of the **Sterling Farm Journal**, Sterling, Colorado; Guy L. Noble, director, National Committee on Boys and Girls Club Work; Jesse T. Anderson, state superintendent of education, Columbia, and Dr. James W. Sells, Religious Editor, **Progressive Farmer**, Atlanta.

Other highlights of the week's program included land clearing and irrigation demonstrations with the

Speakers Exhibits Square Dances Concerts

Clouds of destruction for destructive pests

"How-To" demonstration

AN ESTIMATED 6,000 VISITORS FLOCK TO CLEMSON TO PARTICIPATE IN VARIED FIVE-DAY PROGRAM OF AGRICULTURAL PROGRESS "IN-THE-MAKING"

Sunny days — white shirts & a full program

Pest control in its fastest, most colorful phase

latest types of machinery and equipment, orchard dusting and spraying, a pasture tour, and a visit to historical points of interest near Clemson. Two lectures on flower arrangements by Mrs. Donald M. Hastings of Atlanta drew large crowds of interested women visitors to the College Chapel the first two days of Farmers' Week. One of the largest displays of farm machinery ever seen in the Southeast was held on Bowman Field and viewed by thousands of visitors.

Many state groups held their annual meetings at Clemson during Farmers' Week and participated in the programs. Included in these organizations were the South Carolina Rural Ministers Conference, the State 4-H Club Council, State Beekeepers Association Short Course, Farmers Home Administration (S. C. division), Soil Conservation Service District Supervisors, U.S.D.A. Council meeting, South Carolina Seedsmen's Short Course, an executive committee meeting of the State Nurserymen's Association, and a training school for flock selecting and pullorum testing agents.

Photos by B. K. Eargle,
Clemson Extension Photographer.

Tours Demonstrations Group Singing Style Shows

Latest Methods of boll weevil warfare

Toothpicks for a mechanical giant

Suni-Citrus Pulp
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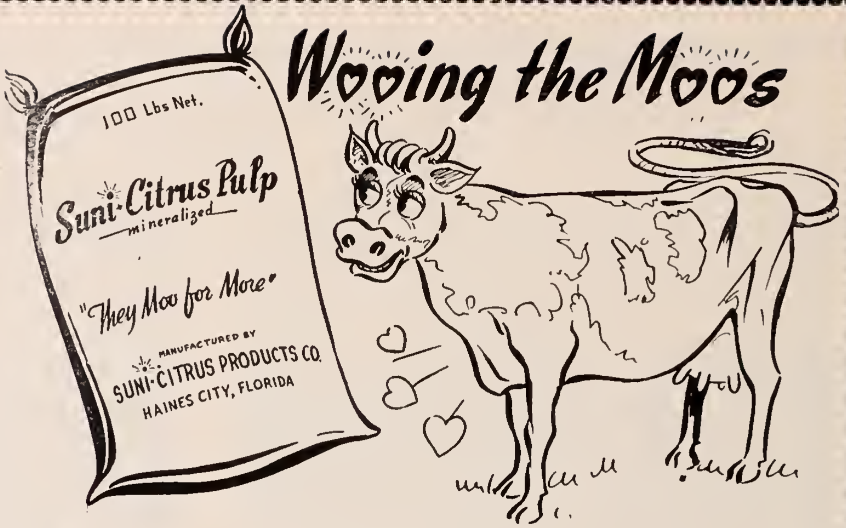
because . .

1. IT is an excellent cattle conditioner.
2. IT will take the place of BEET PULP.
3. IT has a tonic effect upon the animal.
4. IT will produce good milk flavor.
5. IT is a bulky and succulent feed.
6. IT contains 1520 pounds of digestible feed per ton — therefore a cheap source of digestible nutrients.

Wooing the Moos



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FUTURE PROMISING!

VEGETABLE PRODUCTION IN SOUTH CAROLINA

LONG GROWING SEASON, HIGH RAINFALL, AND GOOD SOILS GIVE S. C. ADVANTAGE

During every season in each region of the country there are certain vegetables which can be grown in the home garden, but most of the extensive commercial production has developed in well defined areas because of climate, soil, or access to markets. South Carolina is located in one of the five major areas of production and offers great potentialities as a vegetable producing state. Many vegetable crops are grown in the state, but, in general, commercial production has been limited to the more important crops such as Irish potatoes, cabbage, watermelons and beans. Considering the prices received, many of the minor vegetable crops could be grown with a greater profit.

A belt extending back 100 miles from the coast is ideally suited to the production of truck crops. The temperature is moderate, and the number of frost free days does not limit vegetable growing to any extent. In the astern part of the state the length of the growing season averages 250 days. With South Carolina's long growing season and the fact that the best prices are generally obtained from either late or early crops, there is every reason to believe that production will increase particularly with certain kinds of vegetables. Yield and quality of the various varieties grown in the state is closely correlated to external conditions, and South Carolina is possessed with the condition necessary for the production of high yielding, quality vegetables. With the establishment of the U. S. Regional Vegetable Breeding Laboratory at Charleston and the employment of several plant breeders by the S. C. Experiment Station, new varieties will be presented which will be adapted to conditions as they exist here.

Long rows of lettuces for high stacks of sandwiches

There are many factors which control the growth of vegetables, but, in general, climate and soil type are by far the most important. The growing season rainfall in South Carolina averages 37 inches and is distributed fairly evenly over the entire season; however, seasonal droughts occur in certain areas and irrigation is desirable for the production of certain kinds of vegetables. This factor gives the state a decided advantage over other states in the production of vegetables.

By S. W. HASTINGS
Horticulture, 1950

A fertile sandy loam soil is considered best for growing most vegetable crops, but many can be grown on a wide range of soil classes and types. The lower coastal plain contains the principal soil series of Norfolk, Blanton, Dunbar, Coxville, Bladen, Marlboro, and Portsmouth which are excellent vegetable producing soils.

In selecting a crop to be grown a thorough examination should be made of all conditions necessary to successfully complete the planting and harvesting of the crop. The soil type and condition should be studied so as to ascertain the best methods to be followed in preparing for the cultivation of the crops. The length of time required to grow the crop, the temperature requirements, the length of daylight needed, the amount of rainfall and fertilizer necessary, are all important factors in selecting crops. Subjects also to be considered would be those related to storage, perishability, competition with other growing areas and probable markets for the goods produced.

Cabbage for a mountain of coleslaw and sauerkraut galore

Pests and diseases have always been a problem in the warmer climates, yet these obstacles are rapidly being overcome. New sprays, dusts, and seed treatments have greatly reduced the disease and pest problem.

Vegetable growing requires many man hours of labor, and with the increase in cost of labor the margin of profit becomes definitely smaller. New labor saving devices for harvesting, planting, and weeding are rapidly meeting the problems presented by increased labor cost.

The lack of adequate marketing facilities has greatly hampered growers in this state, but with the aid of state funds and current research new markets will be established and better facilities provided. South Carolina is fortunate in having excellent farm roads which tend to aid in the marketing of crops. The state is traversed by railroads and trucklines which can carry in a period of eight hours produce from the producing centers to points anywhere within the state. A fine seaport plus fast train service to large northern markets will aid considerably the expanding vegetable production.

FENCE POSTS LAST 7 TIMES LONGER
WHEN TREATED WITH

ANTIROT 10X

And you save money, too, by doing your own mixing.

Cut down repair costs on buildings, bridges, and other wooden structuures by preventing rot, decay and insect attack.

One gallon of ANTIROT will treat 22 posts six feet long and four inches in diameter at a material cost of only 18c per post (including cost of fuel oil).

No expensive equipment is necessary to do a good job right on your own farm. Any metal container such as two old steel drums welded together can be used as a treating vat.

ANTIROT is simple to use. Dilute 1 gallon with 10 gallons of fuel oil, agitate to obtain a uniform mixture and you're ready to begin treatment. Place posts to be treated in vat containing the dilute ANTIROT and allow to soak 48 hours.

The cheapest post will then give you years of service, eliminating the expensive repair and replacement of fences.

★

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MANUFACTURERS, FORT VALLEY, GEORGIA

REWARD!

BOUNTIFUL BLOSSOMS AND EVERGREEN BEAUTY

CAMELLIA CULTURE POINTERS — SET FORTH STEPS FOR SHRUBS SUCCESS

It is the opinion of many people that camellias make up the royal family of all broadleaf evergreen shrubs. Their increasing popularity is shown by the rapid increase in membership of the Camellia Society of America which was founded September 29, 1945, at Macon, Georgia, and now has nearly four thousand members.

Camellias were formerly used almost entirely as occasional specimen plants by landscape gardeners, but now they are being widely planted in gardens of the South and West and are frequently used as hedges and in foundation plantings. They are placed in the first rank of garden shrubs because of their evergreen foliage, autumn and winter flowering, and good growth habits.

Nearly all camellias grown in America originated in the orient and largely came from two species; **Camellia japonica** and **Camellia sasanqua.** However, plants of species **Camellia reticulata** and **Camellia saluenensis** are seen very infrequently.

Of the thirty-three species of Camellia only about six are grown in the Eastern part of South Carolina and especially along the coastal plain all species thrive and flower exceptionally well with proper care. In the Piedmont Area all sasanquas and many japonicas will bloom satisfactorily. In general, all fall bloomers flower well in the Piedmont. The mid-season, heavily imbricated flowered with petals spaced like shingles and containing no stamens) camellias don't flower as well in the Piedmont; however, most camellia blossoms containing stamens do flower very well in the colder region.

There are three blooming seasons for camellias in the South. They are fall (early blooming), mid-winter (mid-season blooming), and early spring (late season blooming). Daikagura is one of the best fall flowering Camellias japonica. Other good fall bloomers are Daikagura Shell Pink, Alba Plena, Debutante, and Daikagura Red. A few good mid-season Camellia japonicas are Donckelaari, Grandiflora Alba, Kumasaka, Mathotiana Herme, Chandeleri Elegans, and Tricolor. Two late season bloomers are Elizabeth and Victor Emmanuel. Some varieties of Camellia japonica that have flowered sucessfully in Greenville, S. C., are Cameo Pink, Cheerful, Elizabeth, Longview, Vanity Fair, Vedrine, and Laurel Leaf.

All sasanquas bloom in the early or fall season. They usually can be distinguished from the japonicas by their smaller leaves and open habit of growth. Also, the sasanquas have a very slight odor, whereas most japonicas are odorless, Some good varieties of sasanqua are Rosea, Mine-no-yuki (Snow on the mountain), and Apple Blossom.

JOHN L. FRIERSON
Horticulture and Agronomy 1951

Under favorable growing conditions and over a period of years, certain camellia varieties sometimes reach a height of thirty feet. Camellias, like azaleas, require an acid soil, good drainage, high humidity, and cool winter temperatures along with year around partial shade. A sandy loam soil high in humus and with a pH of between 4.5 to 5.5 is desirable. A good soil mixture for potting or bedding out would be 1/3 peat, 1/3 woods earth, and 1/3 sand.

Camellias do best when planted
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be planted below t
surrounding soil; h
flat land the ball s
so that it is raised one to two inches above the level of the surrounding ground. Camellias prefer a moist soil condition at all times. Just how often they should be watered will depend on the climate and soil conditions.

Fertilizing camellias serves a threefold purpose — it develops plant growth; it assists in maintaining a healthy plant; and it helps develop and "set" the following season's flower buds. Any good azalea fertilizer is usually a good camellia fertilizer. Experienced growers believe that the best time to apply fertilizer is just after the plant blooms or just before it blooms in the case of late bloomers. The application of too much fertilizer can be more detrimental to the plant than too little. Two to three pounds of fertilizer applied per hundred square feet is usually sufficient. It should be applied in a circle around the plant and then washed into the soil to prevent surface root burning.

Camellias should be mulched to help maintain a cool soil condition during the hot months and to help retain soil moisture. Acid type mulches (peat moss, oak leaves, pine needles) should be used as they also help to maintain an acid soil condition. If a heavy mulch is used, a fertilizer high in nitrogen content should be used to replace the nitrogen taken from the soil in decomposing the mulch.

Camellias may be pruned anytime during the year. Pruning tends to improve both vigor and shape of the plants. Due to their shallow root system, camellias should not be cultivated.

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Florida Red Scale
rtant insect pests
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Volck is very ef-
measure. How-
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amounts of the
stomata and kill
or twig blight
the application

n page 16)

BETWEEN

A. J. Schantes, national president ASAE, presenting award to S. T. Russell, past president of Clemson ASAE chapter. Other members of the Clemson chapter present are, from left to right, A. W. Snell, R. P. Bull, L. G. Jeffords, official delegate, and H. N. Black.

AG. ENGINERS RECEIVES AWARD

Each year, the Farm Equipment Institute awards to the outstanding Student Branch of the American Society of Agricultural Engineers a trophy in recognition of outstanding work done and projects carried out during the year.

At the annual National Convention of A. S. A. E. in June, 1949, the South Carolina Student Branch at Clemson received this award. The winning of the coveted trophy climaxed a busy year filled with activity for the group at Clemson. The 100-page report submitted by the Clemson Chapter, which contained full description of field trips, programs, and the many other projects undertaken by the local Chapter, was used as a basis for the selection. A. W. Snell of Elloree served as chairman of the committee which prepared the report; other members of the committee were F. L. FitzSimons of Hendersonville, N. C., Earle Chamness of Bennettsville, H. P. Lynn of Clemson, and P. E. Gervais of John's Island.

A score of 81.2 gave the Clemson Student Branch first place in the competition. Following closely were Iowa State College with a score of 77.9 and the University of Nebraska with 67.5. At the Convention, Clemson placed third behind Iowa State and the University of Georgia.

L. G. Jeffords of Timmonsville served as the official representative of the Clemson Branch at the National Convention. Others attending from the Student Branch were S. T. Russell of Jamestown, A. W. Snell of Elloree, Henry Black of Ruffin, and J. P. Bull of Santee. These men reported that they had an interesting as well as educational trip.

THE DAIRY CLUB DIRECTORY

The 1949-50 Dairy Club shall endeavor to revive the Dairy Club Directory. This will be the first Dairy Directory to be published on the campus since 1940. As did so many other items, this directory vanished during the dark, gloomy days of the recent war. It has been "missing in action" ever since. This year we hope to bring it back from the grave, and let it take its rightful place among the leading publications of the campus.

The Dairy Directorys' purpose is to give news concerning the whereabouts of the Dairy Graduates. We sincerely hope this publication will be a constant source of information and pleasure. It will be the combined work of many students in the Dairy Department, and we hope it will prove to be a valuable connecting link between students, alumni, and faculty.

DR. COOPER DELIVERS ADDRESS

Dr. H. P. Cooper, dean of the Clemson School of Agriculture and director of the S. C. Experiment Station, delivered one of the principal addresses at the formal opening of a new, million dollar John Deere Plow Company branch plant at Atlanta, Georgia, on November 4th. Dr. Cooper attended the plant opening as the representative of the deans of agriculture of the Southern Land Grant Colleges, and was accompanied by Mr. G. B. Nutt, head of Clemson's Agricultural Engineering Department. The new plant will serve five southeastern statess.

IE FURROWS

ALPHA ZETA INITIATES NEW MEMBERS

Alpha Zeta, national honorary agricultural fraternity, initiated 9 new members into the South Carolina Chapter on Thursday night, November 3.

The new members, chosen for their outstanding achievements in the School of Agriculture, are Richard B. Anderson, P. H. major of Sleepy Eye, Minn.; Clifford M. Cofer, Ag. Eng. major of Charlotte, N. C., Lee DeYoung, Hort. major of Clemson, S. C.; James W. Dobson, Agronomy major of Central, S. C.; Samuel W. Hastings, Hort. major of Norfolk, Va.; Jack S. McGinnis, A. H. major, of Mooresboro, N. C.; James K. Price, A. H. major of Gaffney, S. C.; Robert M. Prince, Ag. Eng. major of Lynchburg, S. C.; and Robert B. Scott, A .H. major of York, S. C.

SEARS SCHOLARSHIP AWARDED

Twenty Sears Roebuck Foundation scholarships, each worth $100, were awarded this week to Clemson freshmen majoring in agricultural subjects, it was announced to day by Dr. H. P. Cooper, dean of the Clemson School of Agriculture.

The sophomore Sears scholarship of $200, awarded annually to the student making the highest grade point ratio, among the previous year's winners of freshmen scholarships, was awarded to Robert M. Prince, agricultural engineering sophomore of Lynchburg. Prince's grade point ratio averaged 8.20 for his first year's work. In addition to the scholarship award, he will receive a free trip to Chicago next spring and a chance to compete for one of three national scholarships awarded by the Sears Foundation.

The freshmen scholarship winners are: P. W. Hall, Pendleton; L. A. Davis, Cope; M. L. Jones, Lugoff; D. L. Brown, Florence; P. L. McCall, Jr., Hartsville; D. N. Chamblee, Anderson; A. W. Leland, Wadmalaw Island; R. W. Duke, Kingstree; R. B. Nickles, Hodges; and Carl Hance, Heath Springs.

Other winners are P. D. Dukes, Reevesville; R. T. Hollingsworth, Cross Hill; J. R. Tolbert, Anderson; R. T. Dunlap, Clinton; C. R. Richardson, Chapin; J. P. Bailes, Union; D. C. Martin, Travelers Rest; R. E. Faulkenbury, York; L. C. Weekley, Varnville; and D. D. Smith, Columbia.

DR. MILTON D. FARRAR
New Head Entomology and Zoology Department

New Entomology and Zoology Department Head

Dr. Milton D. Farrar recently assumed duties as entomologist for the S. C. Experiment Station and head of the Entomology and Zoology Department at Clemson, and as such is in charge of all research and teaching in these fields. Dr. Farrar was formerly associate director of the Crop Protection Institute at Durham, N. H.

In his new possition Dr. Farrar succeeds the late Professor Franklin Sherman, who died in 1947. Mr. J. A. Berly, S. C. Experiment Station entomologist, had been serving as acting department head until the arrival of Dr. Farrar.

JUDGING TEAM IN CONTEST

The judging team of the Animal Husbandry Department finished third in the Southeastern Collegiate Judging Contest held in Atlanta recently. R. S. McCants, Jr., placed fourth in the entire contest and the team placed second in mules and swine. Members of the team are T. A. Warren, Jr., C. K. McRae, R. S. McCants, Jr., J. W. Ginn, Jr., and C. E. Causey, Jr.

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PIGS"

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ARISTOCRAT**

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Greetings to the Future Leaders and to those graduates already in the field who will be and are building the South Carolina Livestock Industry to take its rightful position in the standing of the Southeastern States.

Call on Kingan and Company, Orangeburg, any time you believe we con cooperate in any part of this worth while program.

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KINGAN AND COMPANY

Agrarian Philosophy

By

The Editor

This is gonna' be kinda like riding a skinny mule bareback through a rock quarry—no padding or synthetic niceties—just hold tight, swing with the gait and flinch when necessary.

The rest of this magazine has already been edited, set up in type, proofread and the dummy made up—as a matter of fact, part of it has already been printed and more is on the press right now—and here I sit gazing at an absolutely blank page marked Agrarian Philosophy. Further, the printer is threatening to make me run off this issue of **The Agrarian** on a mimeograph if I don't give him a page of copy for Agrarian Philosophy soon, and I do mean PDQ.

Which all adds up to the fact that I've gotto' do some fast writing—no time to pick just the exact word to fit a situation or construct a sentence in just the right manner to convey a thought. Therefore, there'll be no saddle on this tortuous jaunt.

Guess I could waste a few words ranting about walking across the grass around the Ag Building instead of using the sidewalks; but any dumb jaybird knows what sidewalks are for — anyway, aren't Clemson students interested in holding up their reputation as COUNTRY GENTLEMEN instead of acting like a horde of super-modern city slickers rabbit hunting on a farm all pretty and neat with fields covered by a thick mat of young tender grain—just at the stage when a mess of trodding, trampling, and a couple of amateur rabbit races would make it look like a dirty, patchwork quilt in a few days, and mean the difference between a good or bad grain crop.

I heard a story recently about a foreign correspondent for an American newspaper who was traveling through one of the far eastern countries. It seems this guy got to gabbing with a fellow American, a research engineer employed by this eastern country. During the course of the conversation it came out that this American engineer and his staff of native engineers had been working for a couple of years trying to perfect a method whereby they could operate their Marshall Plan tractors on alcohol instead of gasoline—alcohol being much more plentiful in this country than gasoline. (Pardon me while I take a little trip—gotta' explore the customs of the ancient civilizations of the east.)

On with the yarn! Well, this correspondent suddenly remembers he wrote a feature article during the war about some American outfit that had perfected the very method this American and his staff of native engineers had been over-working their gray matter a couple of years to find.

Having been developed only for use in an extreme emergency this plan pretty soon found itself filed away in the deep recesses of librarys and consequently received little publicity. (It would have to be an extreme emergency for many Americans to go to the unbelieveable point of burning alcohol in a tractor. Mule train! Mule train!—may have a job for you back on the farm.)

Just think of the time, effort, and money—not to mention the mental gymnastics — that could have been saved had this engineer taken the trouble to enter the cloistered halls of some stately old library and braved the awe-inspiring silence and spine-tingling dignity long enough to make a thorough search of the files!

Many of us, and by us I mean every type of entertainment-starved individual that's ridden the skinny mule this far, seem to feel that a library is a place for old maids, bookworms, and the kind of people who'd vote against seeing "The Bells of Saint Marys" or "The Yearling" on Sunday. It sounds trite, but a library is like a lot of other things—it's what you make it.

Libraries are the master recorders of civilization—their shelves hold not only the accumulated knowledge of mankind, but also a record of the blunders and mistakes of our forefathers. Maybe if we made the most of our libraries we'd avoid many mistakes and needless repetition. Just a thought—poorly put at that!

This mule is getting skinnier all the time—guess I'd better rest a mite. —Merry Christmas!

Costs so Little . . .
Returns so Much
100 Lb. SIZE
INOCULATES UP TO 100 LBS SEED
CULTURE "C" GOOD FOR
Vetch, Austrian Winter Peas; Canadian and Garden Peas
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THE ORIGINAL LEGUME INOCULATOR
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FRESH—HIGH BACTERIA COUNT—DATED
Read Guarantee — PACKED WITH
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HIGHEST QUALITY AT LOWEST COST

● Blue lupine and NITRAGIN can be a mighty profitable combination for increasing your cash crop yields. One Georgia farmer recently proved this with a corn yield from two adjoining acres. On acre No. 1, the corn was preceded by NITRAGIN inoculated Blue lupine. On Acre No. 2, no cover crop had grown . . . and this field produced only 17.3 bushels of corn. But acre No. 1 yielded 73.6 bushels. The noticeable difference in favor of NITRAGIN and lupine was 56.3 bonus bushels! All over the South farmers are increasing yields of cotton, corn, and other cash crops by inoculating the preceding "green-manure" legumes with NITRAGIN. When you put in lupines, winter peas, clovers, or vetch, always inoculate with NITRAGIN. It takes only a few minutes . . . costs only a few cents an acre to help assure success with the legumes you grow. Get NITRAGIN . . . in the yellow can . . . from your seedsman.

FREE
Legume Booklets
A card from you will bring the free booklets that tell how to grow better lupines and other legume crops such as clovers, winter peas, and vetch. Write today.

THE NITRAGIN CO., Inc., 3929 N. Booth St., Milwaukee 12, Wi

COTTON

(Continued from page 3)

South for many years after factories were built.

The cotton industry of the South has grown by leaps and bounds, surviving the perils of foreign competition, economic disasters, and even the boll weevil, until today it supplies three-fourths of the world's cotton needs.

Cotton contributes to the higher wants of man more than any other plant.

CAMELLIA CULTURE

(Continued from page 11)

of a 5-5-5 Bordeaux mixture in the early spring.

Camellias can be propagated by seedage, cuttage, or graftage. Propagating camellias by seedage is practiced primarily for the purpose of producing new varieties and grafting stock. The seed should be planted in the early fall in a mixture of 1/2 sandy loam and 1/2 peat moss and leaf mold and be covered with 1/2 inch of the same medium. A light sprinkling of alumnium sulfate or sulfur the or medium prevents "damping off." If a hot-bed is used germination will occur within 4 to 6 weeks. Under natural conditions the seed will germinate the next spring. The young plants should be potted when they have produced 4 to 6 leaves. The tap root should be cut back to stimulate the production of side roots. Semi-hardwood cuttings can be made when the new growth has turned slightly brown and is hard enough to "snap" when it is broken. Cuttings should be made 4 to 5 inches long, have at least 2 leaves left after the lower leaves are removed. A mixture of 2/3 sand and 1/3 peat makes a good rooting medium. The cuttings should be kept shaded from direct sunlight by a wide cloth or some similar material and humidity should be kept high. The cuttings should be rooted and ready for transplanting after 100 days. Camellias are usually grafted by means of whip grafts on young stock and cleft grafts on rootstocks over 5 years old. The graft should be firmly tied and covered with grafting wax. Contact between the canbiums of the scion and the stock is required before the graft will be successful.

Luke claimed to have the honor of being the most "sufferingest" patient in the hospital. It seems that he had rheumatism and St. Vitis' dance at the same time. His mouth dropped when he was told of the sailor who became seasick and then developed lockjaw at the same time.

One of the saddest announcements ever seen during the last depression was that posted before the Negro church saying, "Next Saturday night the annual Baptist strawberry festival will be held. On account of the depresssion, prunes will be served."

The Tale of Two Boys

The lad with the peeled willow fish pole took off his shoes. The grassy sod felt moist and mellow, like a thick rug protecting the soil.

The second boy kept his shoes on. Going barefoot is no fun where the land is stony, dry, and scarred by erosion.

Perhaps neither boy knew it, but the difference in the way those soils had been farmed held the clue to their future and the nation's.

Soil erosion is the most challenging problem of agriculture today. Cooperating with the U. S. Soil Conservation Service, Allis-Chalmers is advancing a national plan of action to help farmers conserve and rebuild soil fertility with regular, home-owned power farming equipment. It is a soil-saving system which immediately increases crop yields and improves the nutritive value of our foods.

This is being done not only with a thought for the boys of today . . . but of the tomorrow beyond tomorrow.

The ROTO-BALER developed by Allis-Chalmers introduces a new type of *rolled* bale, saving more calcium-rich leaves of soil-building hay crops. Leafier alfalfa means more nutritious meat and milk for your table.

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CASH ON THE "STUMPHEAD"

SMALL FORESTS AND WOODLOTS CAN YIELD GOOD PROFITS THROUGH GOOD MANAGEMENT AND SELECTIVE CUTTING

A farmer in Louisiana was offered $500 for all the timber in his wood lot. To him it seemed a good price, and he needed the money. But after discussing the sale with his county agent the farmer had a forester examine the wood lot. As a result of this examination he decided not to sell all the timber in the tract. But, instead, with the help of the forester, the farmer made thinnings to release the crowded trees for faster growth, and he made an improvement cut to get rid of defective trees and weeds that were taking up valuable space. In that way he sold about one-third of his timber, and he got $1,700 for it. Moreover, five years hence he will be able to make another sale. The farmer will soon have a steady income from the timber.

In Kentucky, a landowner was offered $7,000 for 310 trees selected by the buyer. On advice of a forester, however, only 199 trees were marked as mature. Bids were invited and those 199 trees were sold for $12,600. Equally important was the fact that adequate growing stock of the more valuable species, properly spaced to obtain maximum growth, was left on the land with an eye to future values.

In South Carolina, the owner of a farm woodland was tempted to sell the entire tract for $2,500. With a forester's help, he sold part of the timber for $7,450 and has half of the trees, the best ones for future growth, still at work on the land growing more wood for another harvest.

These two examples illustrate how a small but ever-increasing number of farmers and other owners of small woodlands are obtaining cash crops.

Most owners of small forest tracts do not usually think of their properties as having possibilities for a regular income; to them, the trees in their woodlands might have no particular value except possibly for fuel wood and fence posts. An offer of a few hundred dollars for all the timber in a small tract probably would strike most such owners as an unexpected bit of good fortune. Yet a small forest, even one of only 50 to 60 acres, can be made to yield its owner good financial returns at regular intervals of 5 to 10 years, sometimes more frequently.

By H. F. PHILIPPSTAHL

Botany, 1951

The key to forest profits is, of course, good forest management. Good management is happily in the reach of most owners of small forest properties. Many, however, will need technical assistance in getting started in profitable woodland management because few owners of small forests now earn their living, or even a small part of it, solely by growing timber. Timber production, if engaged in at all, is definitely a side issue to farming, teaching, selling hardware, banking or some other full time job. Timber growing to the great majority of small forest owners is a new business.

Important as small forest holdings are —or can be— to their owners in yielding a substantial extra income, these small forests are even more important to the nation. Much of our present out-put of forest products come from small woodlands As remaining virgin forests, mostly in large holdings, are cut, the nation's dependence on small wooded areas will increase. All of the forest land in public ownership and all of the land held by large companies, even if managed for continuous timber production, will not yield enough timber to meet future national needs. Less than half of the country's total acreage of commercial forest land is in those ownership classes; the rest is in small holdings. The outstanding importance of small forests in private-forestry cannot be over-emphasized; nearly three of every four acres in private ownership is in individual holdings of less than 100 acres. Despite many exceptions, those small woodlands are not being managed for continuous forest production. Furthermore, out of 100 acres cut for timber only 29 are replanted. With a percentage like this every farmer, with any amount of timber at all, can make a profit every year.

W. B. CAMP & SONS, INC.

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Bakersfield, California

and

Gaffney South Carolina

Today, Farming's more fun!

Farming has changed a lot since the old days. Grandpa was up before the sun and finished his day choring by the flickering light of a smoky kerosene lantern. Long hours and spirit-dulling drudgery were as much a part of farming as his blue denim overalls.

Today, modern power equipment has multiplied the farmers' productivity and taken over much of the muscle work that used to sentence farm families to a lifetime of hard labor. Our farm scientists have developed improved crop varieties and given us better controls for pests and diseases. Crop rotation, soil conservation, and other modern practices help to make the words "America" and "abundance" synonymous.

These modern advancements have not only skyrocketed farm income, but have given farmers more time and energy to enjoy it. Nowadays, there is often time for a little fishing after the chores are done. Farm families spend more hours together, play a bigger part in community activities, and enjoy vacations just like their city cousins.

Yes, farming has become an even more important and challenging occupation than it was in the old days—and a lot more fun!

JOHN DEERE

MOLINE • ILLINOIS

YOUR COMMUNITY

MAKES PROGRESS THROUGH THE GOOD WORK
OF ITS CITIZENS

★

SOUTH CAROLINA POWER COMPANY

Friendly Service for Better Living

QUESTIONS

A Find four letters with teeth, look for them in the name;
Though not used in this sense, the spelling's the same.

B When on your back, it's cut to measure,
When in a pack, it's for your pleasure.

C Cirrus, nimbus and cumulus; change one letter and then
Sisal, manila and hemp; change one letter again.

ANSWERS WILL APPEAR IN THE
NEXT ISSUE OF YOUR MAGAZINE

Chesterfield

RULES FOR
CHESTERFIELD HUMOR MAGAZINE CONTEST

1. Identify the 3 subjects in back cover ad. All clues are in ad.
2. Submit answers on Chesterfield wrapper or reasonable facsimile to this publication office.
3. First ten correct answers from different students win a carton of Chesterfield Cigarettes each.
4. Enter as many as you like, but one Chesterfield wrapper or facsimile must accompany each entry.
5. Contest closes midnight, one week after this issue's publication date. New contest next issue.
6. Answers and names of winners will appear in the next issue.
7. All answers become the property of Chesterfield.
8. Decision of judges will be final.

WATCH FOR THE WINNERS
IN NEXT ISSUE

OK, boys all you gotta' do to win a carton of Chesterfields is move fast—'cause the first ten contest answers that are turned in to Bill Darby, Room 1-374 will get just that—200 free smokes.

POULTRY IMPROVEMENT

(continued from page five)

ing stage the females must make official trap nest records of 200 eggs or more averaging 24 ozs. per dozen and meet certain body weight standards, while the males must come from ancestry of similar record. In 1949 five poultry breeders in South Carolina were engaged in the production of U.S. R.O.P. stock.

The final breeding stage is N.S. Register of Merit. A U.S.R.O.M. sire is a male which has at least one-half, and a minimum of 20 of his daughters qualify as U.S.R.O.P.

The Pullorum-Control and Eradication Classes are U.S. Pullorum-Controlled, U.S. Pullorum-Passed, and U.S. Pullorum-Clean. In each of the classes the flocks must be tested for pullorum by an approved method under supervision of an official state agency after the flock has reached 5 months of age. In Pullorum-Controlled flocks, not more than 2 percent reactors are allowed in the last test, and all reactors must be eliminated from the flock. The last test must not have been made more than 12 months preceeding the sale of eggs. U. S. Pullorum-Controlled hatching eggs are eggs from controlled flocks. U.S. Pullorum-Controlled chicks are those from eggs produced by Controlled, Passed, or Clean Flocks, and hatched in a Pullorum-Controlled hatchery. Thirteen hatcheries of the state operated under this rating in 1949.

U.S. Pullorum-Passed flocks shall contain no reactors, the last test being made within the testing year immediately preceding the date of sale of hatching eggs or chicks from such flocks. U.S. Pullorum-Passed chicks are those hatched in Pullorum-Passed hatcheries from eggs produced by Pullorum-Passed or Pullorum-Clean flocks. Seventeen hatcheries of the state made this rating in 1949.

U.S. Pullorum-Clean flocks shall contain no reactors in two tests made at least 6 months apart or 3 tests made at least 30 days apart. After a flock has been established as Pullorum-Clean, one test pen will be sufficient to maintain the rating. U.S. Pullorum-Clean chicks come only from Pullorum-Clean eggs and must be hatched in Pullorum-Clean hatcheries. Ten South Carolina hatcheries obtained this rating in 1949.

THE LUCKY SOUTH!!

WE CAN HAVE GREEN PASTURES THE YEAR 'ROUND

A winter pasture like this is a real Christmas present for a herd

Winter feed is the No. 1 problem facing the cattle industry in the South today. A wide variety of so-called "winter pastures" such as hay, fodder, silage and supplemental range have been tried and "found wanting" by the average farmer. We of the South are indeed fortunate in our mild climate which makes possible the growing of year round pastures. Perhaps no section of the United States can offer such a climatic condition and for this reason the winter feeding problem has never been solved. If a farmer fails to find one crop ideal he drops it and tries another, without giving the first crop time to develop its full potentialities.

Successful livestock farming has always been closely related to green pastures. Nomadic people throughout the world have always searched for green pastures and when these were found they prospered and multiplied. It is true that in most of the civilized world man has learned to store food for winter periods, but even then he has always dreamed of green pastures with grazing cattle therein the year round. This need no longer be a dream, for with the present day grasses and proper management it has come to be a reality.

The Animal Husbandry Department of Clemson College has conducted winter grazing tests for several successive winters using purebred Hereford cows in the test. Last winter (1948-1949) the date of seeding was October 12, 1948. Forty pounds of Ryegrass and 20 pounds of Crimson clover per acre were used with 700 pounds of 4-10-6 and 200 pounds of sodium nitrate being applied as fertilizer. The most important factors of planting time are a well prepared seedbed and an early seeding date. It is desirable to have seeding date by the last of September if possible. In this test, grazing was started February 2, 1949 which gave a period of about 4 months between seeding and grazing. There were 30 acres of pasture in the test and 7 to 32 cows were grazed. The cows were allowed to calve while on pasture and the calves remained on pasture also. The cows and calves were removed from the pasture May 16, 1949, giving a period of approximately 3 months on grazing. The daily gain per cow was 3.11 pounds and the daily gain per calf was 1.67 pounds. The cost of grazing per acre was $33.62 which amounted to 47 cents per cow per day. These figures speak for themselves as to economy; and these are not accidental results. Tests were also conducted during the two previous winters with approximately the same results.

No results have been released as of yet, but the Fescue-Ladino clover combination seems to be an improvement in the grazing world. Without a doubt cattle production is on the increase in the South and year round grazing is the key word. Those who are far sighted enough to keep up with the changes and improvements in management will be leaders in this expanding industry.

Overgrazing is probably the greatest mistake that most people make with winter grazing. This usually results from the failure to provide sufficient acreage to care for the animals that must be fed. Greater returns can be had from grazing several different pastures rotationally. Removing the cattle from a field after it has been grazed down gives it an opportunity to recover faster. The best results can be obtained if enough grazing is available to give each field a three to four-weeks rest following each grazing period.

With all the advantages we have in the South, there is no reason why the fields should not be green the year round. For our economic welfare let us strive and take steps forward to this goal.

T. A .WARREN, JR.
Animal Husbandry '50

More Ether

Egotism is an anesthetic which nature has given to deaden the pain of being a fool.

When God made man He did not arrange the joints so that he could pat himself on the back.

"Your methods of cultivation are hopelessly out of date," said the youthful agricultural college graduate to the old farmer. "Why I'd be astonished if you got ten pounds of apples from that tree."

"So would I" replied the farmer, "it's a pear tree."

Closest Aid

"If you're looking for a helping hand—try the one on the end of your arm."

"The dogs in Siberia are the fastest in the world."

"Why?"

"The trees are so far apart."

TALL CORN

A little city boy who had been to the country, was describing to another boy friend the big pig he had seen. "It was in a pen," he said, "and it was afraid of all the little pigs. They would chase the big pig all over the pen, around and around, and pretty soon it fell with exhaustion, and the little pigs pounced upon the big pig and ate all the buttons off his vest."

Some men grow under responsibility—others only swell.

In Texas they like their liquor straight, as witness the case of one old timer, who, upon taking in his hand a small tumbler of whiskey said, "Blindfold me and hold my nose—'cause if I see it or smell it, my mouth will water and dilute it."

He is a gentleman farmer; the only thing he raises is his hat.

This sign was posted over a Kentucky farmer's acres:

NOTIS

Trespassers will be persecuted to the full extent of two mongrel dogss which ain't never been too sociable with strangers and one double br'l shotgun which ain't loaded with soft pillows. Danged if I ain't gitting tired of this hell raising 'round my place.

The meanest man in the world is the man who threw his voice under the old maid's bed.

A young man met a rival who was somewhat advanced in years, at the home of the girl they both courted, and wishing to annoy him, inquired how old he was. "I can't exactly tell," replied the older; "but I do know that an ass is older at twenty than a man at sixty."

REVENGE: The bull gored the car of the veterinarian who was the artificial insemination agent.

LOVE COWS?

It was late dusk; the moon was just showing on the horizon. The farm boy and the girl from town were leaning on the pasture bars watching the calf and its mother rubbing noses.

"Gee!" said the farm boy. "I'd like to be doing that."

"Go ahead," smiled the girl. "It's your cow."

What this country needs is a good recipe for home brew, intended for those who have no home.

Bride: "What is the best way to protect my wedding ring?"

Mother: "Dip it in dishwater three times a day."

The two battered wrecks of humanity sat together on the park bench discussisng their plight. "I asked for it, pal," said the first, "I never would take anyone's advice." "So did I, friend," returned the first, "I took everyone's."

Dr. W. E. Petersen, dairyman of the Minnesota staff has set up a list of "udderances" for the success of the dairyman, quote:

To be successful, a dairyman must be udderwise.

All that a dairyman is he owes to udders.

Cows must be milked from the udder end.

Many cows are udderly ruined by poor milking.

The cow's udder is a bigger money bag than most udders.

Udders injuries produce mastitis.

Be considerate of udders and the regard shall be yours.

Don't expect good results from a cow that is udderly neglected.

This is not all udder nonsense.

Daffynitions

Optimist—a guy who opens a quart of whiskey in a crowd and saves the cork.

Wedding — a funeral where you smell your own flowers.

It was the first vaudville performance the old colored lady had ever seen, and she was particularly excited over the marvelous performance of the magician. But when he covered a newspaper with a heavy flannel cloth and read the fine print through it, she grew a little nervous. He then doubled the cloth and again read the letters perfectly. This was more than the old colored lady could stand, and jumping up from her seat, she said: "I'ze goi'n home, dis ain't no place for a lady with a thin calico dress."

A mountaneer of one of the back counties of Kentucky was arraigned with several others for illegal distilling. "Defendant," said the judge, "what is your name?"

"Joshua," was the reply.

"Are you the man who made the Sun Stand still?"

Quick as a flash came the answer, "No, sir; I am the man who made the moonshine."

A cow-puncher ordered a steak at a restaurant. The waiter brought it in rare—very rare. The cow-puncher looked at it and demanded that it be returned to the kitchen and cooked.

"It is cooked," snapped the waiter.

"Cooked — nothing," replied the cow-puncher. "I've seen cows hurt worse than that and get well."

A little boy asked his father, "Papa, what does it mean, business ethics?"

"Well, explained the merchant, "it's like this. Comes into the store a man and makes a purchase. He gives me bright, new five-dollar bill, which is just the right amount, and starts out. I'm turning to the cash register when I discover that it's not one, it's two five-dollar bills stuck together. Now comes in the business ethics—should I tell my partner?"

A woman may be as old as she looks, but a man is old if he doesn't.

A wedding ring is like a tourniquet! It stops your circulation.

AT LAY-UP TIME this Fall—*you can help prevent the winter rust* that costs thousands of farmers the use of valuable farming equipment *if you use Esso Rust-Bans.*

ESSO RUST-BAN 347 protects all kinds of exposed machinery metal. It is quickly and easily applied with brush or cloth, and readily removed at any time with kerosene. For plows, cultivators, disks, and other exposed implements.

TO STOP the attack of rust on the insides of idle engines, use *Esso Rust-Ban 603.* It has special properties that combat rust, and a protective film adheres to inside engine surfaces, affording important, winter-long protection. In the Spring, Rust-Ban is replaced with motor oil.

ANY ESSO FARM DISTRIBUTOR will gladly tell you about other Esso Rust-Ban products that can mean money-saving protection for valuable farm equipment.

You can depend on
Esso
FARM PRODUCTS

ESSO STANDARD OIL COMPANY

AGRICULTURAL STUDENTS are offered *free subscriptions* to regularly published ESSO FARM NEWS . . . a favorite with farmers for its very complete crop articles and its many helpful tips to better farming. To get yours, please write: Esso Farm News, 15 West 51st Street, New York 19, N. Y.

Short Notes on Long Hall

Dr. W. F. Chamberlain recently arrived at Clemson to assume duties as Associate Entomologist with the S. C. Experiment Station. Dr. Chamberlain received his Ph.D. degree from the University of California at Berkeley in June, 1949.

A. B. Snell of Elloree, a 1949 Clemson graduate, has been appointed assistant professor of agricultural engineering. Prof. Snell will teach soil and water conservation engineering as well as drainage and irrigation studies.

A. W. Snell of Elloree, a 1949 Clemhorticulture graduate, has been appointed assistant professor of horticulture to serve for one year replacing assistant professor T. L. Senn, who is doing graduate study at the University of Maryland, College Park, Md.

Over 30 delegates from five foreign countries as well as the United States attended the first International Sesame Conference held at Clemson College on August 15-16.

Foreign visitors from Denmark, France, Venezuela, El Salvador and India were welcomed to the campus by Dr. R. F. Poole, and Dr. H. P. Cooper, director of the S. C. Experiment Station.

Sesame, or "benne" as it is familarly known, has new possibilities as a cash crop for the Southeast, delegates were told by J. A. Martin, associate horticulturist of the S. C. Experiment Station. The oil-rich seeds are increasingly in demand as the cottonseed oil supply decreases with acreage controls being applied, Martin added.

Thirty-one seniors in the animal husbandry department at present as againsst nine seniors in 1939 attest to the rapid growth of this department in recent years and the increased interest in stock raising in South Carolina. This department now has more student majors than any other department within the School of Agriculture.

DR. COOPER ELECTED VICE-PRESIDENT OF A. S. A.

Dr. H. P. Cooper, dean of the Clemson School of Agriculture and director of the South Carolina Experiment Station, was elected vice-president of the American Society of Agronomy at the annual meeting of the group, held October 25-28 in Milwaukee, Wisconsin.

Under the rules of the organization Dr. Cooper will become president of the Society in 1950 after serving one year in the vice-president's capacity. This marks the second time in recent years that a Southerner has been elected to the post, the first also being a Clemson graduate in the Class of 1908, M. J. Funchess, dean of the Auburn School of Agriculture, and director of the Alabama Experiment Station.

Dr. Cooper was graduated from Clemson in the Class of 1911, and received his Ph.D. degree from Cornell University in 1922. He has received national recognition for his research on minor nutrient elements in plant nutrition.

ALL AROUND THE FARM

Relatively few farms had electric service when the Duke Power Company began its rural electrification program 25 years ago. Today, the Piedmont Carolinas are one of the most highly electricified rural areas in the South, and new farms are being added daily on line extensions which already total an astonishing 15,000 miles and more in the Rural Piedmont of the two Carolinas.

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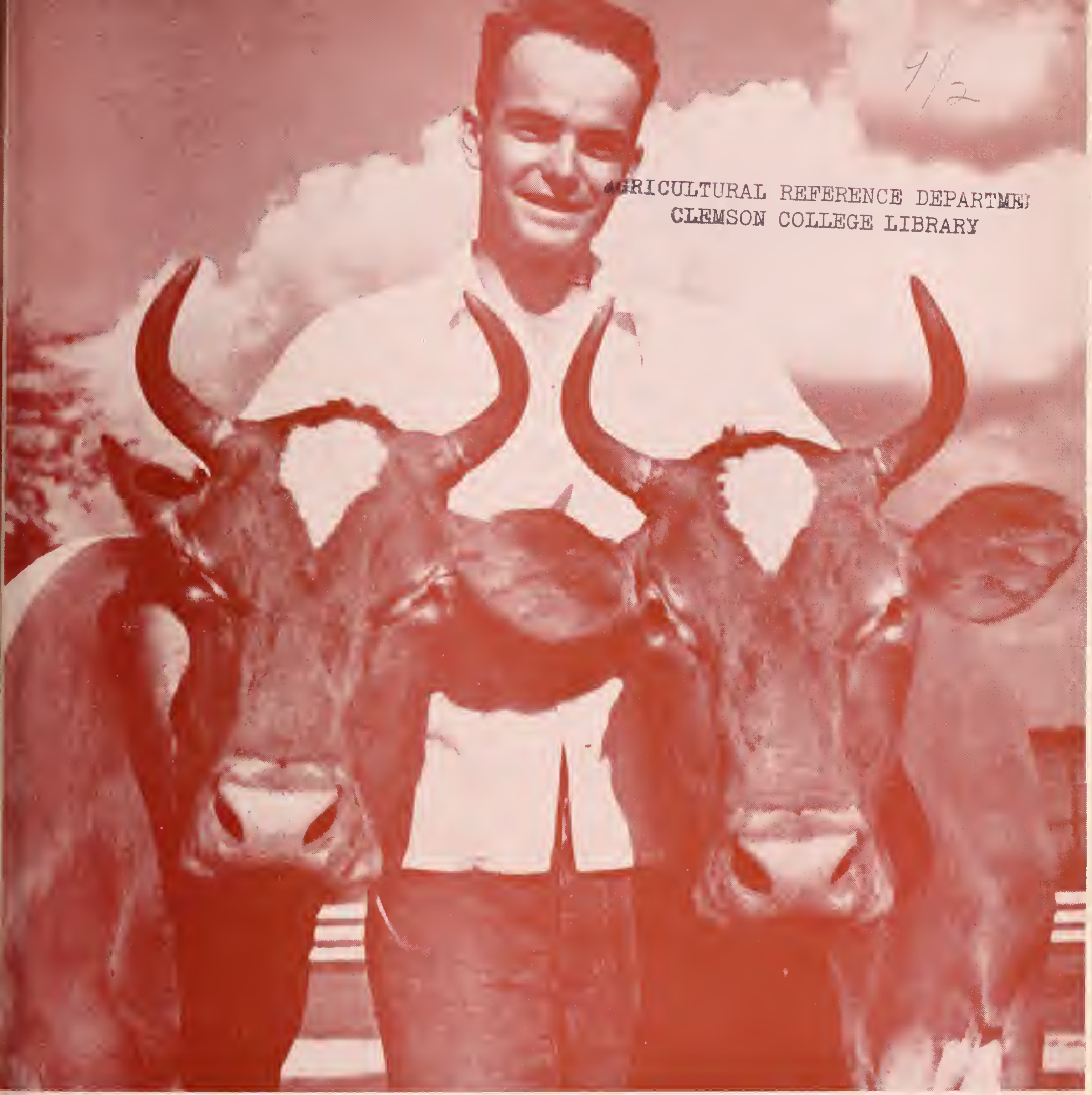
For CHESTERFIELD CONTEST See Page 20



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The Agrarian

OFFICIAL STUDENT PUBLICATION

HE CLEMSON A & M COLLEGE • CLEMSON, SOUTH CAROLINA • JANUARY, 1950

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Camels for Mildness

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NOT ONE SINGLE CASE OF THROAT IRRITATION DUE TO SMOKING **CAMELS!**

The Agrarian

OFFICIAL STUDENT PUBLICATION

VOLUME 9 THE CLEMSON AGRICULTURAL COLLEGE NUMBER 2

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THE COVER—J. E. Cushman, now a Dairying junior at Clemson, is pictured with his twin registered Guernsey cows at his home in Chester, S. C.
Photo by Stan Lewis

Pasture picture on page 5, by John Cothran.

Suni-Citrus Pulp

is popular with progressive Dairymen because . .

1. IT is an excellent cattle conditioner.
2. IT will take the place of BEET PULP.
3. IT has a tonic effect upon the animal.
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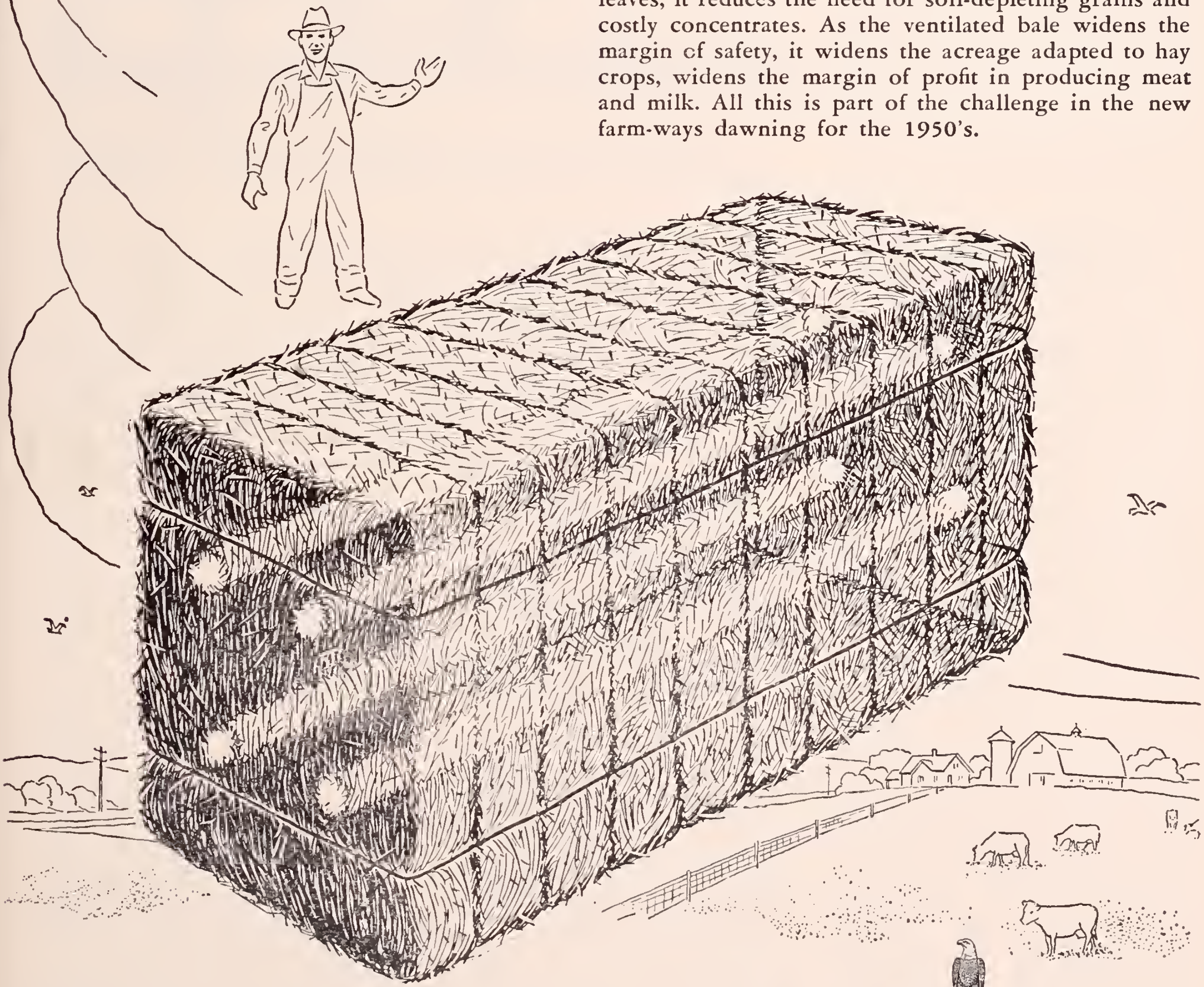
WESTMINSTER, SOUTH CAROLINA

New Challenge to Farming in the 1950's

●Here are four empty holes, full of promise to widen the horizons of grassland farming. They challenge you ...the leaders of tomorrow's agriculture...to find in their four-fold void the vision of soils guarded from erosion, water resources conserved, livestock husbandry given a lift, farming made more prosperous.

With these air tunnels through the dense center of the bale, final curing in storage is faster, more nearly uniform clear through the bale. It widens the margin of safety, reduces the possibility of mold in the bale center, gives greater assurance of bright, sweet hay with full measure of nutrients, vitamins and minerals.

When hay is cut at the peak of protein content and baled before exposure invites leaching, bleaching and loss of leaves, it reduces the need for soil-depleting grains and costly concentrates. As the ventilated bale widens the margin of safety, it widens the acreage adapted to hay crops, widens the margin of profit in producing meat and milk. All this is part of the challenge in the new farm-ways dawning for the 1950's.



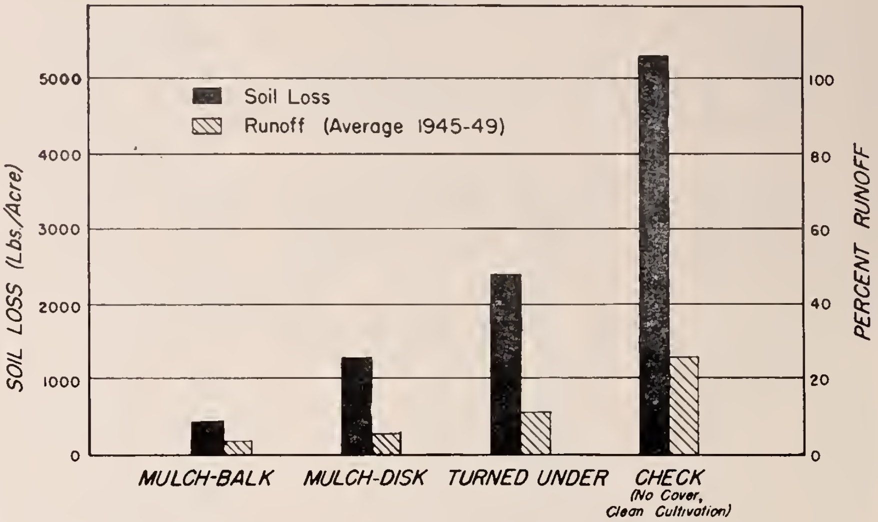
Ventilated bales are the result of years of development by Case engineers. Two years of testing by an agricultural college compared ventilated bales with conventional bales of the same hays, handled and stored the same. Professional graders found the hay in ventilated bales of consistently higher average quality. All Case Slicer-Balers are now built with Bale Ventilator. It also is available for installation on machines in use. J. I. Case Co., Racine, Wis.

CASE

MULCH FARMING--THE SOIL SAVER

Is Mulch Farming An Answer to Our Soil Erosion Problem?

The use of mulches may have a very large effect in helping to reduce runoff and erosion throughout the Southeastern states, according to a report prepared by Prof. George B. Nutt, Head of the Agricultural Engineering Department, on the experimental work which has been conducted at Clemson on mulch farming. As shown by the accompanying graph, soil loss may be reduced by the utilization of surface mulches from over 5,000 pounds of soil per acre to less than 400 pounds per acre, and water runoff may be materially reduced at the same time.



COMPARISON OF TILLAGE METHODS ON THE EFFECTIVENESS OF VETCH AND RYE FOR REDUCING RUNOFF AND EROSION

By ROBERT M. PRINCE
Agricultural Engineering '51

These experiments have been conducted since 1942 by the South Carolina Agricultural Experiment Station, in co-operation with the Soil Conservation Service of the U. S. Department of Agriculture. Many problems have been encountered during this period as to the type of equipment to be used in maintaining plant residue on the surface as a mulch. Machinery had been developed for this purpose in other sections of the country, but this equipment, which included wide flat sweeps with rolling coulters, was found to be entirely unadaptable to the hard, dry, rocky soil which predominates in the Piedmont province in which Clemson is located. Various types of machinery have been tested, however, only those which have been proven to be the most satisfactory will be discussed.

The first operation in the preparation of mulch is usually done about the first week in April. A heavy duty tandem disc harrow equipped with scalloped discs and weight boxes is used to kill the cover crop without turning it under. In 1949, a Graham-Hoeme tiller was used after the discing operation to further loosen the soil. About two weeks after discing, the planting furrows are opened up with a middlebuster which has several modifications. The moldboards are removed; the frog is cut down to allow soil to fall back into the furrow; disc hillers are attached in such a manner as to move the vegetation away from the furrow; and a rolling coulter is attached to cut through the material and prevent clogging. As soon as possible after the furrow-opening operation is completed, planting is done in the opened furrows by a conventional planter with a fertilizer attachment. Just as with the middlebuster, disc hillers are also used with the planter to push vegetation out of the furrows.

Mulches prepared in this manner have been very effective in reducing runoff and erosion in corn fields, and have even increased the corn yield in some cases. Cultivation is done by rotary hoes for one or two cultivations, followed by the use of sweeps for several cultivations when the corn is big enough.

The use of mulches in cotton has not proved to be as satisfactory as with corn because of a reduction in yield. There are several reasons for this reduction, possibly the most outstanding of which is that the presence of plant residue provides a harboring place for boll weevils.

It has also been found that the effectiveness of small grain in preventing erosion is greatly increased by employing a mulch, which provides more protection during the fall and winter months. The land is prepared for planting, not by the use of a turn plow, but by the use of a spring tiller and disc harrow which leave much of the plant residue near the surface. This method of treatment has significantly raised the yields of small grain and has held soil and runoff losses to very small quantities.

The Clemson experiments have proved that mulch farming has definite possibilities to reduce erosion on the rolling land of the Southeast. However, it offers a strong challenge to the farm machinery manufacturers. Planting equipment needs to be developed which would eliminate the separate furrow-opening operation which is now necessary in maintaining a mulch on corn land. If manufacturers will perfect the proper type of mulch machinery, great progress can be made in the field of soil conservation through the use of mulch farming.

Super Pasture

Intergration of Agriculture and Industry in Anderson County

Agriculture is fifteen months old at the Gerrish Milliken rayon weaving plant, a Deering Milliken mill located at Pendleton, South Carolina. Most non-agriculturists do not consider agriculture in the same industrial light as they do other businesses; consequently, as they visit the new mill, they are struck by the seeming contrast between agriculture and industry, the cows grazing on the clover and fescue, the modern mill working for maximum efficiency.

The reasons for the presence of the agricultural project are many. The new rayon weaving mill at Pendleton cost approximately $4,000,000; therefore, it was most appropriate that this mill have a landscaping job that would do justice to the mill itself. A large share of the credit for the "Deering-Milliken Farm Project" must be given to Mr. E. W. Simpson, a New Jersey landscape architect, and Farm Manager of the entire project. In 1948 a conference was held between Mr. Simpson and Mr. Roger Milliken, who heads the corporation, and at that time it was decided that alta fescue and ladino clover were the most suitable crops to plant. The object of the plan was not only to improve the appearance of the mill but also to provide an income that would at least pay for the operation. Seed crops from ladino clover and alta fescue were to furnish this income.

By ALAN SIBLEY, JR.
Agronomy '51

Mr. Simpson realized the importance of this undertaking, and he shifted his base of operations to the mill area. The fact that the mill was located so near Clemson College was a main factor in deciding that the landscaping project should be agricultural, and Mr. Simpson did not hesitate to enlist the help of the Clemson College Agricultural Extension Service, with which he has been working closely. Mr. H. A. Woodle, Director of the Agronomy Extension Work, had a soil analysis made of the soils at the new mill, and from this information fertilizer recommendations were made. Mr. Simpson is also working in conjunction with Mr. J. H. Hopkins, Anderson County Agent, on the county's Pasture Improvement Program. All in all, Mr. Simpson has been hurrying back and forth between Pendleton and Clemson to try to solve the many problems that arise in any new agricultural undertaking.

To date the fescue-ladino pasture is fifteen months old. In the spring of 1949 the pasture was cut and the grass sold to Clemson College where it is being used for silage. The silage is of very superior quality and is the best the Clemson Dairy Department has on hand, analyzing over 20 percent T.D.N. Ladino seed and hay were also harvested in 1949.

It became apparent that the most economical plan for removing the excess growth of pasture from the land was to begin a cattle program. Today there are 158 head grazing on the 157 acres at Deering Milliken, two-thirds of which were shipped from Kansas City, Missouri, on November 2, 1949. The remaining one-third have been acquired since that time from local markets. Help has been obtained from the Clemson School of Agriculture regarding the proper care of these animals. Professor E. G. Godbey, Animal Husbandman, has been consulted frequently.

At present the year round pasture is divided into six plots of comparable acreage, separated from one another by electric fencing. The cattle, consisting of 150 Herefords and 7 Aberdeen Angus, have been shifted from plot to plot. They are now grazing on Plot 5, and Plot 1 is almost ready to be grazed again. As the cattle are shifted to successive fields, the grazed plots are fertilized with a complete fertilizer plus additional applications of ammonium nitrate. Favorable results have been

(continued on page eighteen)

PROFITABLE AND EFFECTIVE PRUNING

POINTERS ON PRUNING KNOW-HOW

Just as a good gardener will strive to prevent haphazard growth of a flowering plant, so will any person possessing pride in the trees and shrubs surrounding his dwellings strive to give these "plants of a larger variety" a chance to grow properly in order that they may make the most beneficial contribution to the appearance of his property.

Pruning is a very common practice in both city home lots and farm grounds; however, to say that effective and profitable pruning was employed in most of these cases would not be in accordance with the opinion of most tree pruning experts. The practice of pruning is not restricted to man; it is a natural and necessary process used by nature.

One of the primary rules to be followed in pruning is that every cut should be made with reason.

Generally, pruning falls into two broad catergories: (1) structural pruning to remove weak and dead branches; (2) corrective pruning to correct growing faults, eliminate interfering and interlacing branches, and to promote symmetry.

NATURE'S HARD WAY

In the forests it is nature's course for trees to prune themselves which often results in violent and ruthless treatment. Over a period of years, the weakest limbs decay and eventually fall. Sometimes, during a wind or ice storm, whole arms of trees are torn out, leaving huge ugly scars. Man, when he applies modern practical methods can do a much better job of pruning. Three questions are commonly asked in any pruning discussion: When to prune, What to prune, and How to prune.

The old adage, prune when the saw is sharp, has always been a good practice. Winter months are considered the ideal months to prune because the leaves have fallen to the ground and the pruner can better see what he is doing. Then, too, lawns are not disfigured and there is less damage to plants around the tree.

Almost everyone recognizes that dead wood and dying branches should be cut away in the interest of appearance and safety. But equally important, it is done for tree sanitation. Timely pruning and pruning of the bark of all weak, dead and dying wood is an effective method of checking the spread of disease. Pruning the bark destroys the bark beetles which over wintertime are grubs. Otherwise, the beetles will spread infection to healthy trees in the spring. Pruning will help keep pests under control and is a sanitary practice; it will also serve to check such outbreaks as blight, wilt, and anthracnose. Commonly, pruning stops with the removal of dead branches which is only a good start in effective pruning.

By H. F. PHILIPPSTHAL
Botany '51

The guidance of young and middle-aged trees is very essential. The object is to produce a strong tree by avoiding Y crotches and the development of limbs so near each other that later growth will result in interference either at the base or farther out.

Take a long look at your trees now. Most persons assume that trees should be allowed to grow at will. Notice the wayward branches and the Y crotches. Most of the common lawn trees have a habit of developing a large number of slender branches, some of which rub one another. An excessively branched tree of this type can be helped by a good healthy thinning, but it should be done over a two or three year period. Removing too much wood at one time will open up the tree to sun scald injury. And sun scald is followed by the invasion of bark beetles and borers.

Remember how thick the top of the shade tree on the front lawn was this summer? It shaded the house so much that it made the living room dark, and when heavy winds blew, it would strike the outer walls of the house. You were afraid the tree would blow over if a severe wind storm would come. Winter pruning will thin it. The top can be opened for air circulation and entrance of light. The tree will benefit and so will the once-darkened house.

Just as taller trees can be lowered by pruning, trees whose branches scrape your hat when you walk beneath may be made taller. Simply raise their lower limbs by removing them. It should always be remembered that the natural form of most trees is more beautiful than an artificial shape. Character pruning has its primary aim—the pruning of a tree so that its true branching habits will stand out as a beautiful silhouette against the sky.

Before beginning to prune, keep these three principles in mind:

1. Pruning the top of a tree invigorates the branches that remain.

2. Pruning the roots—done principally when transplanting a tree, lessens the food supply and so retards top growth.

3. Removal of excessive buds throws greater vigor into those that remain. Pruning away terminal buds induces a thickening of the branch system.

YOUR EASY WAY

Always begin pruning at the top of a tree, then work down. It is easier to shape a tree by this method. Time is also saved in clearing the pruned limbs. Always cut a branch close to the trunk swelling from which it originates. Keep the size of the cut to the practical minimum. The best results are obtained when the tools are sharp. And if a tree being pruned is known to be diseased, sterilize the tools before using them again on a healthy tree.

When you have finished, stand off and ask yourself whether the tree looks as though no limbs have been removed at all. The proof of good pruning is the complete absence of any conspicuous evidence of the pruning work. If the finished work measures up to that, you have mastered the art of pruning.

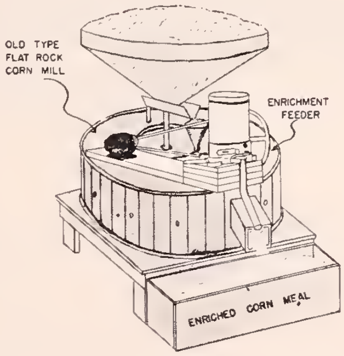
MORE FOOD VALUE FROM ENRICHED CORN MEAL AND GRITS

DR. E. J. LEASE, Nutritionist
S. C. Experiment Station

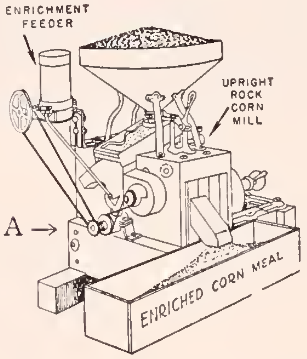
The Nutrition Department of the South Carolina Experiment Station recognized that corn meal and grits consumption is so large in South Carolina, that research on the nutritive value of these products would be very worthwhile. Analyses proved that corn is very low in mineral and vitamin content. The lowest income group probably eat more corn products than any other one food and also would benefit most by inclusion of more vitamins and minerals in their diets. The Experiment Station recommended enrichment of corn meal and grits.

The State Nutrition Committee, composed of some 45 people representing all state agencies, decided corn meal enrichment was really worthwhile. They presented a proposed law to the General Assembly which was enacted and requires that all degerminated corn meal and grits sold in South Carolina be enriched.

In the meantime, mechanics in the Nutrition Department shop developed a device to feed the enrichment into the meal as it was ground at the mill. At the same time, the chemists developed an enrichment mixture containing the vitamins and minerals, which would flow through the little feeder into the corn meal. After much work, a granular grits premix was also developed which looked just like grits but would not wash out when the grits are washed prior to cooking.



Some 200 millers saw the value of enriching meal, how it would benefit them as well as their communities, so they had the feeders installed on their mills and enriched voluntarily. The law requiring enrichment of degerminated corn products did not apply to the small local mills, as they ground the whole corn meal.

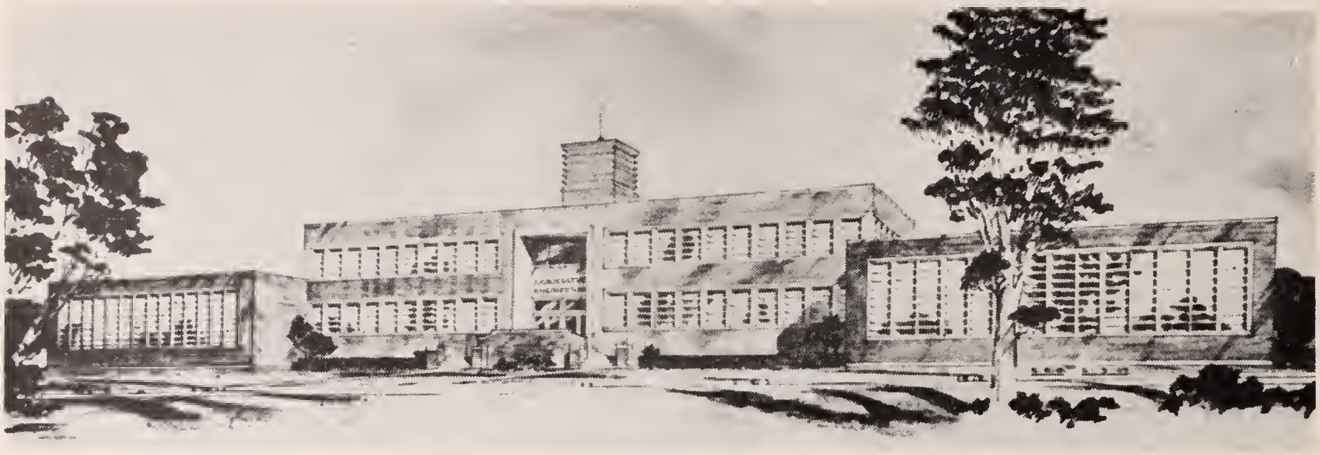


The Clemson College Extension Service actively participated in taking the program to the people. Installation of feeders and distribution of enrichment ingredients is conducted on a non-profit basis as a service to millers.

Millers who do not enrich, do not clean their shelled corn, do not label their products, or carry out other sanitary milling practices, can undersell the millers who do. This caused unfair competition. The State Nutrition Committee again came to the rescue and was instrumental in getting the 1949 General Assembly to pass a law requiring that all corn meal and grits sold in South Carolina had to be enriched and labeled. This law became effective September 1.

Much emphasis is being placed on milling and marketing **clean** corn meal. The mechanics at Clemson have developed an inexpensive corn cleaner which removes dirt, insect fragments, and rodent excretia from shelled corn. This eliminates filth which ordinarily is ground into the meal. The cleaner, feeders and premix, are available to millers on a non-profit basis. South Carolininas who consume carloads of corn bread, hush puppies, spoon bread, grits, and other delectable dishes from corn, continue to receive benefits from work done for the good of the public through this project.

"Elevators keep rodents out, and preserve the quality of the grain"



NEW AGRICULTURAL ENGINEERING BUILDING GOING UP

Expansion of Agricultural Engineering Department Underway

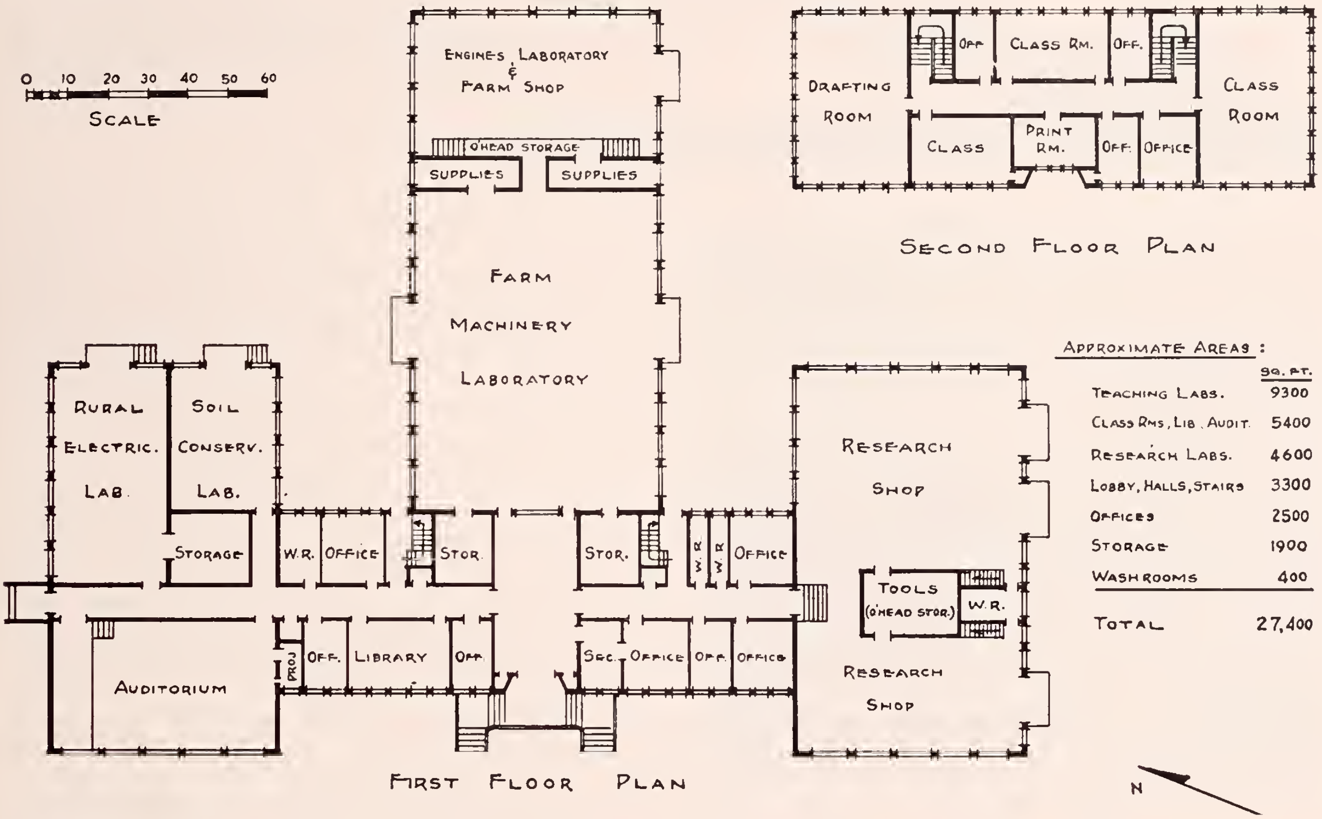
Clemson's new modern Agricultural Engineering Building, which is under construction on Jersey Lane, will cost approximately $250,000. The contract for construction was awarded to Brissey Lumber Company of Anderson, and it is estimated that the new structure will contain approximately 30,000 square feet of floor space. Architects for the project are Oliver and Dickson of Columbia, South Carolina.

The new building will contain five classrooms, two research laboratories, an auditorium seating approximately 200 persons, and five student laboratories for instruction in the various applications of engineering principles to agriculture. This modern T-shaped structure will be used to replace an old frame farm machinery building which was built in 1910 when Clemson's total enrollment was less than 1,000 students, as compared with the present student body of 3,300. The old building originally had a dirt floor and still has no heating facilities. Each year students poured a little more concrete, until now the entire structure has a hard surface floor. Old grads identify themselves by how much concrete was poured when they were there.

The exterior of the new building will be of face brick and cast stone trim. It will be provided with a modern system of fluorescent lighting, and provisions will be made for electric service to many items of motorized equipment which will be operated. Construction of the building will be non-combustible throughout, having walls of brick masonry with reinforced concrete columns and beams, steel joists and roof trusses, and floors of concrete on grade or steel supports.

An unusual feature of the building will be large plate glass windows and doors at the main entrance, through which displays can be seen in the central laboratory. It will be heated by radiant floor panel system in the central portion of the building and by steam unit heaters in the

Pictured above is the forty year old frame farm machinery structure, which is being replaced by the new $250,000 Agricultural Engineering building. (Photo by B. K. Eargle, Official Extension Photographer)



Approximate Areas :

	Sq. Ft.
Teaching Labs.	9300
Class Rms, Lib. Audit.	5400
Research Labs.	4600
Lobby, Halls, Stairs	3300
Offices	2500
Storage	1900
Wash rooms	400
Total	27,400

Shown above is the floor plan for the Agricultural Engineering Building. (Plan scaled down for THE AGRARIAN, courtesy of Professor W. P. Law)

large open areas, using steam from the central college heating plant.

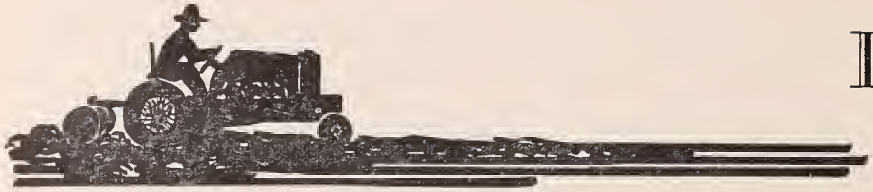
The building was made possible by an appropriation passed by the 1948 session of the South Carolina General Assembly.

The Agricultural Engineering Department was formed in 1931, being a division of the Agronomy Department prior to that date. Professor George B. Nutt came to Clemson in September, 1932, and has been head of the department since. The present Agricultural Engineering staff consists of six full time professors, four research workers, and four research workers at branch experiment stations.

Research activities of the Agricultural Engineering Department include mulch farming machinery, mechanized cotton production, sweet potato planting and harvesting machinery, sweet potato storage, and fence post preservation. Other activities include electrically heated plant beds, electrically heated sweet potato storage houses, mulch farming, and irrigation of field crops.

Approximately 200 students have graduated in Agricultural Engineering since 1933, and it is estimated that approximately 45 students will graduate this year.

Shown above is the site of the new modern Agricultural Engineering building. (Photo by B. K. Eargle, Official Extension Photographer)



BETWEEN

Pictured above, Professor James B. Cooper discusses his new poultry textbook with Alfred Cureton, student at Calhoun-Clemson High School. (Photo by Kenneth Kay)

COOPER AUTHOR OF POULTRY TEXTBOOK

Professor James B. Cooper, Associate Professor of Poultry Husbandry, and Associate Poultry Husbandman for the S. C. Experiment Station, is the author of a poultry textbook released this month by the publishers, Turner E. Smith & Co., Atlanta, Georgia.

The title for this 487 page book is **Poultry for Home and Market.** Professor Cooper's book is one of few on this subject to be written by a southern author. This textbook, which is primarily to be used in vocational agricultural classes, is the first book on poultry to be published in 1950.

Professor Cooper received his B.S., and his M.S., at the University of Kentucky. Before coming to Clemson, he was connected with the Georgia Experiment Station at the University of Georgia.

HUSMANN OBTAINS LEAVE OF ABSENCE

Dr. W. Husmann, Professor of Agricultural Economics, has obtained a leave of absence until June 30, 1950. He will spend April and May making observations on the European Recovery Program, with emphasis on Germany, Holland and Denmark.

Dr. Husmann, a graduate of the University of Berlin, has been in this country about 12 years having taught first at V.P.I., and coming to Clemson in 1946.

TAYLOR WINS BORDEN AWARD

Calvin C. Taylor, Agricultural Economics senior of Greenville, has been named the winner of the 1949 Borden Award. The award of three hundred dollars is given annually to the agricultural senior with the highest scholastic average, and having included in his curricula two or more dairy subjects. Taylor is the first Clemson student to earn the award who did not specialize in dairy husbandry. The Borden Award is established at 23 colleges and universities in the United States. Their purpose is to stimulate and recognize scholastic achievement by the undergraduate students of agriculture.

ATTENDS SCIENCE MEETING IN NEW YORK

Attending the convention of the American Association for the Advancement of Science, which was held in New York City, December 27 through 31, from Clemson were Dr. H. P. Cooper, Dean of the School of Agriculture, and Dr. R. W. Rutledge, Associate Professor of Botany. Others attending from the experiment stations were: Dr. W. F. Chamberlain, Associate Entomologist; Dr. Robert Aycock, Associate Plant Pathologist for the Edisto Experiment Station; and Dr. W. M. Epps, Associate Plant Pathologist at the Truck Station near Charleston.

ELECTED TO BLUE KEY

Professor George B. Nutt and W. B. Boykin were recently elected to Blue Key, national honor leadership and service fraternity. Professor Nutt is Head of the Agricultural Engineering Department. Boykin, an Agronomy senior of Boykin, S. C., is Chancellor of Alpha Zeta, national honorary agricultural fraternity, and President of the Agronomy Club.

FURROWS

CLEMSON MEN ATTEND CONVENTION

When the 47th annual convention of the Association of Southern Agricultural Workers met in Biloxi, Mississippi, February 9, Clemson was well represented. The group attending from this state was composed largely of workers from the Experiment Station, Extension Service, and Soil Conservation Service.

The theme of the three-day meeting was, "The South's Agriculture is on the march — let's tell more about it." Many subjects related to agriculture were discussed in the various groups into which the convention was divided. Dr. R. F. Poole, President, Clemson College, was a member of the executive committee, and J. M. Eleazer, Extension Information Specialist, was chairman of the agricultural editors section.

Among those from the Clemson staff who gave reports were Dr. H. P. Cooper, Dr. G. H. Aull, Dr. G. M. Armstrong, L. O. VanBlaricom, Weber Peterson, J. A. Martin, R. A. McGinty, C. L. Morgan, M. A. Boone, and C. P. Williams. Also included on the program were Dr. T. C. Peele, J. P. LaMaster, Dr. W. A. King, and H. J. Sefick.

Henry Simmons, Clemson Experiment Station Editor, participated in a discussion panel on The National Farm and Home Hour in a nation wide radio hook-up. The topic of discussion was, "Southern Agriculture on the March". Mr Simmons discussed new advances in southern agriculture, some of which were mechanization, pasture irrigation and new crops of the South.

BRYAN WINS ESSAY CONTEST

William J. Bryan, a January Animal Husbandry graduate, is the 1949 winner of the annual Swift college essay contest. Bryan made a trip to the International Livestock Exposition, and represented South Carolina at a four day livestock marketing study held by Swift and Co. in Chicago, Illinois. Thirty-four college representatives from thirty-four agricultural colleges throughout the nation participated in the marketing study. The contest winners were all guests of Swift & Co.

Lee DeYoung retiring editor is pictured telling John Pitts, editor elect, and Jim Cushman, co-editor elect, that editing THE AGRARIAN is no easy task. Shown from left to right are Pitts, Cushman, and DeYoung. (Photo by Bennett Smith)

AGRARIAN NAMES NEW STAFF

In an election held earlier this month, the new Agrarian staff for 1950 was named. John H. Pitts, Agronomy senior of Clinton, was chosen to be the new editor, replacing Lee B. DeYoung. Jim Cushman, Dairying junior of Chester, will serve as co-editor, with Robert K. West, Vocational Agricultural Education junior of Cameron, as managing editor.

Others elected to positions on the executive staff were James W. Woodfin, Agricultural Engineering junior of Inman, as business manager; Everett A. Garner, Agronomy junior of Cedartown, Ga., advertising manager; William J. Jenkins, Horticulture junior of Osborn, circulation manager; and Frank M. Flowers, Animal Husbandry junior of Darlington, assistant advertising manager.

The departmental editors and the assistant staff will be chosen by the new executive staff. The new staff will officially take the reins with the March issue.

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Agrarian Philosophy

By

The Editor

We regret very much that this issue is late, but we assure you that it was due to circumstances beyond our control. We'll do better next issue—we hope.

Clemson is indeed growing . . . . . .

Everywhere you look around the campus you see a new building going up, or a herd of bulldozers clearing ground for a new project. There's the housing project, and the Clemson House, but we of the School of Agriculture are particularly proud of the new Agricultural Engineering building which is already under construction. An ironic incident occurred when the construction people moved in to break ground for the new structure. As they were removing soil for the foundation a water main was hit and for a while it looked like a preview of the Hartwell dam. Water and more water! Imagine, and an engineering building too.

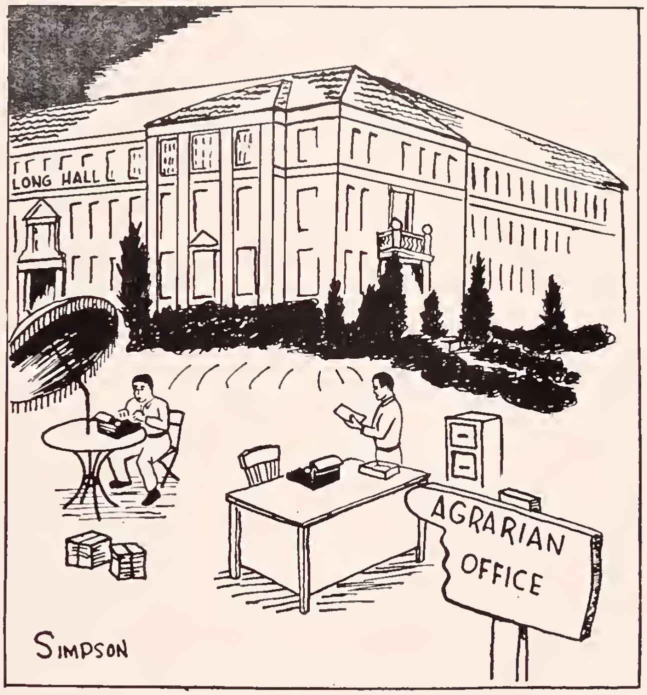
We hope it won't be too long before construction crews scratch the ground for the new Animal Science Building.

Save That Soil

Speaking of removing soil reminds me of something I saw the other day; in fact, something I see quite often. While driving down a country road, I saw a crew preparing a road bed for hard surfacing. They had scraped all the good topsoil from several acres of productive land to put on this road. Granted, we need good farm-to-market roads, but we **must not** sacrifice good soil to improve them. That's as bad as the man who used the walls of his house for fire wood, until one day he didn't have any house. The farmer certainly won't have any farm if he keeps donating his soil to every "needy road". The farmer should realize that his land is his heritage, and that he has no moral right to abuse it. Looking at the situation from a wider scope, the land owner is merely a custodian to posterity, and he owes to succeeding generations, the land in as good condition as it was when it came into his possession. Remember, Mr. Farmer, "as the man treats the soil, so shall the soil treat the man".

We're Homeless

Evidence of the crowded conditions and inadequate space in the School of Agriculture is the fact that the AGRARIAN has practically been turned out to pasture, as is shown in the illustration. Although we are not actually out in the cold yet, we've gotten our eviction notice to move our office from our present nook in the basement of Long Hall. We hope that the new staff will succeed in securing an adequate AGRARIAN office, both for meetings and a place for the staff to work.



Stop That Skinner

Cheating—that's a ticklish subject, a subject that we've heard a lot of talk about, but very little done about. Every school has that heterogeneous few who stoop to unfair means to obtain information during quizes and exams. And Clemson, we regret to say, has its share of this group. Since we don't have any form of honor system in most classes, we believe that the only answer is for the professors to be more strict—much more strict. Many professors are just too lax in examination discipline. When a student is taking an examination with a group where it is very evident that "skinning" is going on, and obvious that the professor knows it, his attitude is, "What's the use". If a professor fails to call down dishonest students, it's only natural that this undermines the morale and character of the normally honest student. Consequently, he is tempted to resort to unfair means, too. Professors, give it a thought.

The Inside Story on Clemson's Agricultural Education Graduate Program

Clemson has known and shouldered the responsibility of preparing men for the teaching profession for many years. The administration has also come to realize that every year the importance of teachers in the progress of any society is becoming more and more prominent. It is for this reason that Clemson now has a completely staffed Graduate Program in the School of Vocational Education.

The administration of the training of teachers involves two very definitely related fields. In the first place, the profession of teaching brings one in direct contact with one of our greatest public institutions — the public school system. Today as never before the United States Government assists thousands of students and many school systems and institutions. To understand and co-operate with all of these agencies is a responsibility of school administrator and teachers.

One of the problems which school people should consider constantly is that of subject matter. The scientist through graduate work and research is constantly expanding and reviewing many aspects of teaching. In graduate work for teachers it is necessary that the teacher have a high regard for his "subject matter" field. In the training of agriculture teachers, the School of Agriculture and The Agriculture Experiment Stations offer great possibilities for the advancement of knowledge in this area. To teachers who strive to help pupils to interpret and apply the findings of scientific research graduate study at Clemson offers an opportunity to help these teachers become better prepared for this responsibility.

In graduate work at Clemson, one unique feature is a course which has been given for the past two summers. While the graduate students are here for a six weeks summer term, they make an intensive study of some particular subject that has been assigned to them by the head of the department of Agricultural Education or the instructor concerned. When these teachers return to their school communities, they continue for six more weeks to follow up this study and finally they analyze the problem under consideration and make a report on it. The pattern of this work, Dean W. H. Washington of the School of Education says, could perhaps be followed in the Industrial and General Education field.

By R. K. WEST
Vocational Ag. Education '51

Dr. R. F. Poole, President of Clemson College, has acted as Chairman of the Graduate Committee until the recent appointment of Dr. H. J. Webb to this position. A representative from each school is appointed to serve on this committee in order that each school might present the problems that concern them.

Before being admitted to the Graduate School a student must have the Bachelor's degree from an institution with a scholastic rating satisfactory to the college. He must also have an average undergraduate grade of B or better in his major field. After these things are considered, the applicant must make an application to the Chairman of the Graduate Committee after first having received permission from the Head of the Department in which the major work is to be taken. The application is accompanied by a transcript of previous college work.

The graduate work consists of a minimum of 30 semester hours of which six semester hours must be in research and thesis work. Of the remaining 24 semester hours, at least 12 hours must come from graduate courses which are numbered 500 or above. In addition to these major subjects, all graduate students are required to take 12 hours of minor courses in other departments, and a seminar course in methods of research and their application to their research problems.

All students in graduate work are required to write a thesis which will be acceptable to the Graduate Committee. The topic selected for thesis work is selected by the student and must be approved by the Chairman of the Graduate Committee. The School of Education hopes that the research work done by education students on their thesis will prove helpful in promoting education in South Carolina.

In the professional education field, Dr. T. A. White spends much time assisting graduate students. Heads of the three departments of teacher education are: Mr. J. B. Monroe, Vocational Agricultural Education; Mr. J. L. Brock, Industrial Education; and Mr. J. B. Gentry, General Education. These three men spend much time in counseling graduate and undergraduate students in problems pertaining to education. Ten men are enrolled in Graduate work at this time in the Department of Agricultural Education.

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Scholarship Winners at Clemson

Four outstanding 4-H Club boys who have won scholarships because of their records of achievement are now majoring in several fields here in the Clemson School of Agriculture.

Three of these awards were provided by the Esso Standard Oil Company. Each year this company, in cooperation with the 4-H Clubs of America, presents 23 scholarships in as many states, each paying $100 a year for four years, to farm boys who are outstanding in 4-H Club activities and have a scholastic standing in the upper half of their respective classes. One of these scholarships is awarded each year in South Carolina. The three winners of these scholarships now at Clemson are Frank M. Flowers, animal husbandry junior from Darlington; Robert M. Prince, Jr., agricultural engineering junior from Lynchburg; and Robert W. Dozier, agricultural engineering freshman from Marion.

Another 4-H scholarship winner is John F. Welter, sophomore poultry major from Greenville, who received an award from the Dearborn Motors Corporation because of his record as a national 4-H poultry achievement winner.

Frank Flowers' record includes over seven different types of project demonstrations. Because of his well-rounded record he was chosen to represent South Carolina both at the National Club Congress in Chicago and the National 4-H Club Camp at Washington, D. C. He is also a past president of the State 4-H Council.

Left to right: J. C. Belk, Frank Flowers, George E. Williams, Robert Prince, Jr., John Welter, Leon O. Clayton, S. C. Stribling.

Robert Prince was president of his community 4-H Club for three years and vice-president of the Lee County 4-H Council for two years. After coming to Clemson, he also won a freshman Sears Roebuck scholarship, and this year won the sophomore Sears scholarship award of $200 by having the highest grade point ratio among the twenty winners of the freshman awards. He will also be given a free trip to Chicago this spring and a chance to compete for three national Sears junior and senior scholarships.

By H. M. SIMONS, JR
Asst. Experiment Station Editor

Robert Dozier was president of his community 4-H Club for three years and served as president of his county 4-H Council for two years. An outstanding student in high school, he took an active part in school clubs and athletics and stood second in his senior class.

John Welter has participated in seven different types of 4-H projects and his 4-H poultry and other clubwork resulted in his growing 3,000 chicks and 500 laying hens in partnership with his father last year. He has served as officer of his county 4-H Council, county calf club and local 4-H organization, as well as having represented his county in a number of state meetings.

DENHAM JOINS AGRICULTURAL ECONOMICS STAFF

Sidney B. Denman has joined the staff of Agricultural Economics and Rural Sociology, as Assistant Rural Sociologist. Mr. Denman will teach and do research in Rural Sociology. He is a native of Mississippi, and was educated at Mississippi State, Tulane, and Duke University.

HORTICULTURAL CLUB ELECTS NEW OFFICERS

In a recent election the Clemson Horticulture Club elected its new 1950 officers. G. T. Leonard of Asheville, N. C., was elected president, succeeding Lee DeYoung who graduated in February. Also elected to office were Huland Bowen of Westminster, vice-president; John W. Smith of Lancaster, secretary; and Lucius Hamilton, treasurer.

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Much of the world is hungry, but we in America take "second helpings" for granted. Starvation stalks many lands, but well-fed Americans eat three "square" meals a day. We have no monopoly on sunshine, rain, and good soil, but our progressive farmers have made the words "America" and "abundance" synonymous.

It takes plenty of know-how and lots of hard work to produce bumper yields and record crops. With the help of favorable weather, modern methods, and machines, however, our farmers have worked this miracle many times the past few years.

These blue-jeaned famine fighters give modern power equipment much of the credit for multiplying the productivity of our land. Happily, it has done even more. Power machinery has made it easy for farmers to retain or rebuild precious topsoil by using the latest conservation methods. It has given our agriculture new vitality by encouraging thousands of mechanically-minded farm boys to seek their fortunes on the farm rather than in the city. By reducing the uncertainty and drudgery of farming, power equipment has made possible fuller, happier lives for farm families everywhere.

Arm men who love the soil with scientific methods and modern power machinery and you can expect great things: Better stewardship of the land . . . a more stable and productive agriculture . . . an even better-fed America . . . perhaps a famine-free world in the forseeable future.

JOHN DEERE

MOLINE • ILLINOIS

SUPER PASTURE

(continued from page five)

obtained from the addition of the ammonium nitrate, and in the future applications of 100 lbs., 200 lbs. and 300 lbs. of ammonium nitrate per acre will be tested to see which of the three is the most economical on the basis of increased quantity and quality growth of pasture.

About April 1st of this year, the cattle will be shifted to Mill No. 2, possibly for the entire summer. At Mill No. 2 there are 300 acres of pasture consisting of rye grass, crimson clover and Bermuda grass. Depending upon developments, some of the cattle may be sold this Spring, or they may all spend the summer at Mill No. 2 and be sold in the Fall.

At any rate, the cattle will be removed from their present location in order to allow the alta fescue to produce a seed crop. One-half of the alta fescue comes from certified seed and the pasture originating from the certified seed is separated from the pasture which originated from non-certified seed. The fescue seed obtained will greatly help to supply the needs of the State, for last year only one farm in South Carolina produced certified fescue seed for sale. Every effort will be made to combine the ladino seed.

All but three of the cattle now on hand are steers; consequently, it doesn't appear as though a breeding program is close at hand for the "Deering-Milliken Farm Project", and it seems probable that the mill will purchase feeders again next year. All of the future plans stated above are tentative, and doubtless changes will be made in any direction that indicates a higher profit combination for the Mill Farm Program.

The cattle weighed an average of 450 lbs. when placed on the pasture in November and are gaining a pound a day per head. Some hay is being fed at present as a supplement.

There can be no doubt as to the scenic value of the "Deering-Milliken Farm Project", but there is some controversy concerning its agricultural value. There are more cattle on the ladino-fescue pasture than the recommendation call for, and the fescue is being grazed lower than the minimum height for grazing, which is 6 inches. Some people feel that this over-grazing will cause a marked reduction in seed yields and pasture growth, while others think that with favorable climatic conditions and proper fertilizer and other farming practices the effect of heavy grazing will not be of a serious nature and that the increase in livestock gains will more than compensate for the over-grazing. It is impossible to say definitely what the residual effect of this heavy grazing will be, and only time will tell. At any rate, it should be emphasized that the Farm Project is still in the experimental stage and that future plans are tentative; consequently, it should be apparent that the Project is going to offer valuable information to any farmer in the State who plans to enter a similar winter-grazing program and who is interested in finding out the most profitable way to raise livestock.

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Armour developments add value to farm livestock, and make possible better products for better living for consumers everywhere.

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Rastus was coming home late at night, and started up the stairs, but much to his dismay, one of the steps creaked and as he hesitated, he heard his wife say, "Who dat?" He didn't answer, but waited a few seconds, and then started up again and in two or three more steps, another creaked. This time a male voice said, "Who dat?" This was too much for Rastus, and he called out, "Who dat say dat second 'Who dat'?"

The bathing dress that grandma wore
Looked like a Mother Hubbard;
But girls who swim today look more
Like Mother Hubbard's cupboard.

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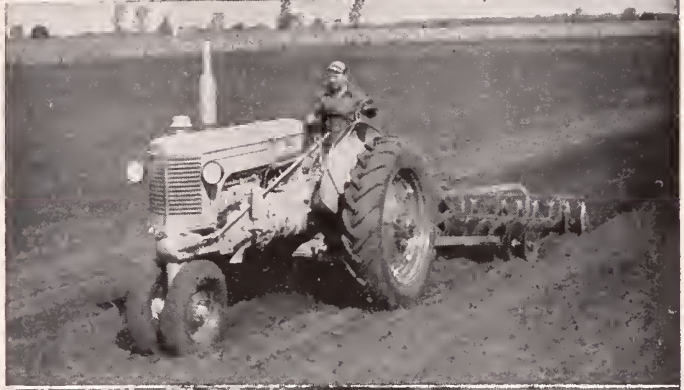

PIONEERS came with their axes, guns and hoes, their wooden plows, iron plows, steel plows, oxen and horses; and through hard work, unimaginable hardship and drudgery carved for themselves homes and farms from a rugged, new land. Their farming tools were in many respects quite the same as those used in Biblical times and not much better. But unlike the people of older times, men in this land had equality, opportunity, aggressive ingenuity, freedom from oppressive restrictions . . . time and opportunity to think and plan. And men prospered . . . invented machines to help do their tasks faster and better. The last 100 years was a period of sudden, swift progress . . . real progress . . . and it parallels the history of the farm machinery industry. More progress was made in the last fifty years than in all the ages before.

That progress continues under the American system of free enterprise and capitalism. Men who plan beyond tomorrow know that modern methods of agriculture will assure posterity of fertile, productive soil. That is why more and more progressive farmers demand MM MODERN TRACTORS, MACHINES, and POWER UNITS. They know that the MM trademark is the recognized symbol of highest quality since 1865. Today MM modern machines of proved dependability and economy . . . machines built to do the work with comfort, convenience, and safety enable the farmers of America to supply the world with food, fiber, and oils.

Today's farmers using modern methods and modern machinery are truly *Pioneers of Progress!*

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FEBRUARY GRADUATES

George Seaborn of Walhalla, who graduated in V.A.E. in February, is now teaching farm veterans in Sumter.

W. C. Metts, a February V.A.E graduate, is now teaching agriculture in McCormick.

R. J. Vermillion of Donalds, who graduated in V.A.E. in February is teaching veterans in Seneca.

Raymond T. Moore is teaching veteran farmers in Central. Moore graduated in V.A.E. in February, 1950.

Norman McFaddin of Easley, a February, 1950, V.A.E. graduate, is now teaching agriculture at Gables High School, Gables, S. C.

Geo. H. Baker, a February Agronomy graduate, has accepted a position with the Extension Service. Baker, who is from Cades, will become an assistant county agent after a short orientation of several weeks at Clemson.

S. T. Russel, Agricultural Engineering, '49 of Jamestown, is now doing graduate work in Agricultural Engineering at Iowa State College.

QUESTIONS

A I'm said to be honest, in short, without guile;
Change a vowel at the end, I'm a beautiful isle.

B Crops of the birds, an insect that hums,
Run them together and up my name comes.

C We're homonyms three, and to pick us out better,
We're a noun and a verb and a capital letter.

ANSWERS WILL APPEAR IN THE NEXT ISSUE OF YOUR MAGAZINE

Chesterfield

RULES FOR CHESTERFIELD HUMOR MAGAZINE CONTEST

1. Identify the 3 subjects in back cover ad. All clues are in ad.
2. Submit answers on Chesterfield wrapper or reasonable facsimile to this publication office.
3. First ten correct answers from different students win a carton of Chesterfield Cigarettes each.
4. Enter as many as you like, but one Chesterfield wrapper or facsimile must accompany each entry.
5. Contest closes midnight, one week after this issue's publication date. New contest next issue.
6. Answers and names of winners will appear in the next issue.
7. All answers become the property of Chesterfield.
8. Decision of judges will be final.

LAST MONTH'S ANSWERS & WINNERS

A FILE in the title "The File on Thelma Jordon."

B CHESTERFIELD. A form-fitting coat and a pleasure-giving cigarette.

C CLAUD POPE. A cirrus, nimbus or cumulus is a CLOUD. Change one letter and you have CLAUD. Sisal, manila and hemp is ROPE. Change one letter and you have POPE.

WINNERS...

P. E. Ramsey, S. R. Boyle, C. H. Rodgers, R. V. Vliet, J. L. Bozard, O. Stukes, J. Hinson, M. Richbourg, W. Reid, H. E. Hord.

J. F. Canfield, of Greenwood, who is a February graduate, has accepted a position with the Ford Tractor Agency in Charlotte, N. C., as a field instructor.

S. P. Young of Dalzell, and P. L. Benfield of York, both February graduates have accepted fellowships at the University of Illinois. They will begin work there next month.

T. A .Warren of Prosperity, who graduated in February, has accepted a job as assistant county agent in Chester county.

R. S. McCants, a February graduate, is now connected with the Southland Provision Company of Orangeburg.

J. W. Ginn of Charleston, who graduated in February, is now an assistant county agent in Chesterfield county.

D. G. Haigler, A.H. February '50, is now farming near Cameron.

E. G. Wyndham of Moncks Corner, who graduated in February '50, is now farming.

E. L. King, a February Animal Husbandry graduate, is also farming, but plans to take Veterinary Medicine at Penn. State next fall.

Tom E. Wallace, a February graduate in Agronomy, has returned to Bennettsville to farm.

CLEMSON DELEGATE ATTENDS ALPHA TAU ALPHA CONCLAVE

Thomas E. Johnston of Moncks Corner was the Clemson delegate to the Alpha Tau Alpha National Conclave held in Atlantic City, New Jersey, during the American Vocational Association Convention.

Johnston was elected by the local Kappa chapter to be their representative. His expenses were paid by L. C. Martin Drug Company of Clemson. Johnston, a February graduate in Vocational Agricultural Education, is now teaching veterans in Cross, S. C.

OK Fellows, get on the ball and get the answers to the Chesterfield contest down to Harry Dukes in room 3-B29 . . . First ten get a cartoon of free smokes . . . Be sure to read the directions . . . . . .Editor.

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International Harvester researchers use their 1,000,000-volt "seeing eye" for two important jobs: (1) They sample parts from the production lines to keep IH quality high. (2) They study the under-the-skin behavior of iron and steel to pioneer better manufacturing methods.

X-ray inspection is typical of the modern methods used at IH Manufacturing Research. Here skilled technicians, armed with the latest scientific devices, safeguard IH quality—help develop even better machines for the future.

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Motor Trucks . . . Industrial Power . . . Refrigerators and Freezers . . .

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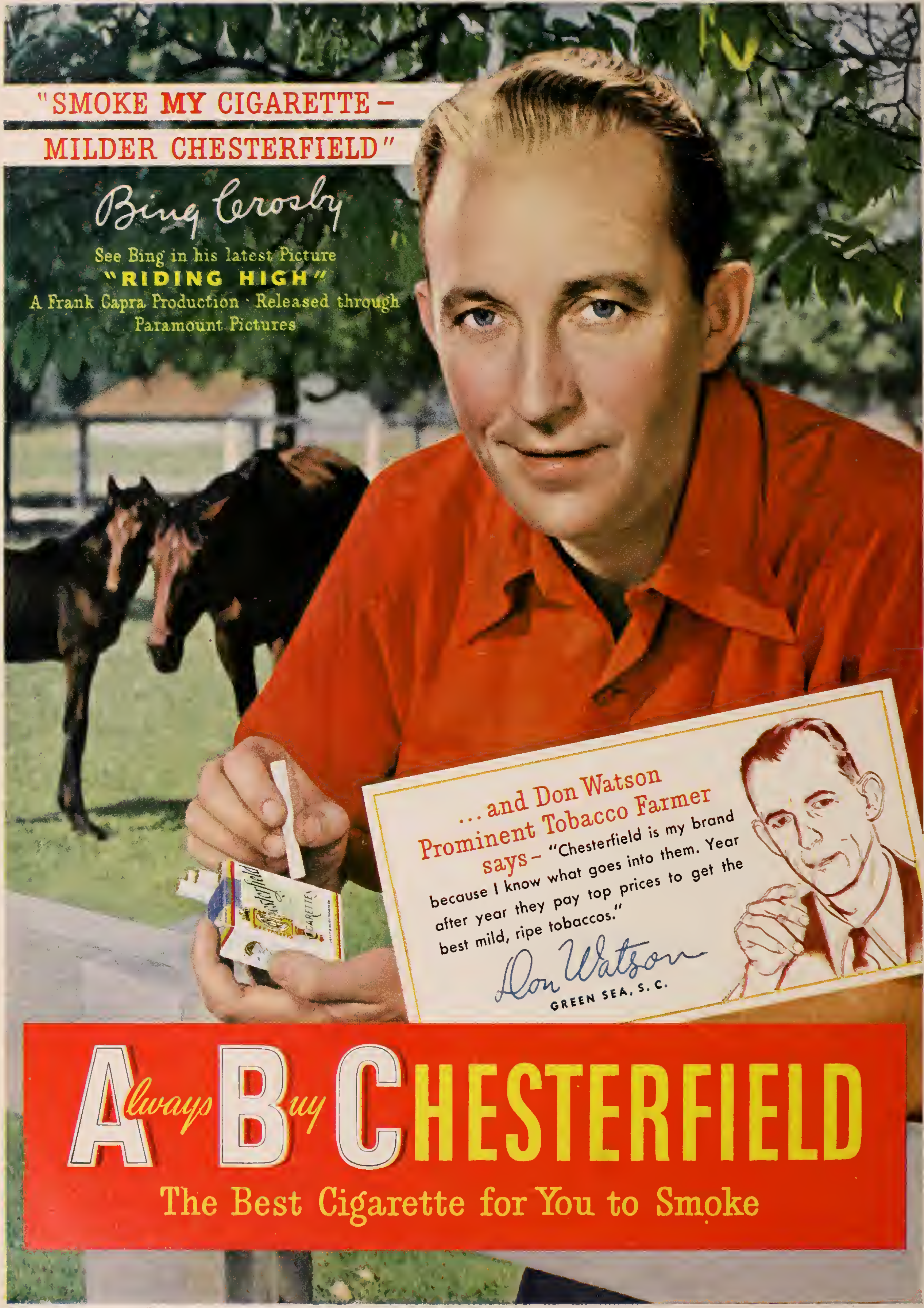

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Don Watson
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The Agrarian

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The Agrarian

OFFICIAL STUDENT PUBLICATION

VOLUME 9 THE CLEMSON AGRICULTURAL COLLEGE NUMBER 3

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Grains of Opinion - -

For The Welfare of the State?

By JAMES E. CUSHMAN

From all indications visible to the public, a bill before this session of the South Carolina State Legislature requiring the testing of all cattle which are being sold through stock yards of South Carolina and returned to the farm is being defeated. This bill was sponsored by the South Carolina Dairy Association in the interest of the protection of the state's cattle population from destructive diseases which cost southern cattle men thousands of dollars each year, not to mention the threat to the health of the consumers of milk and meat products. The holders of those offices which enable citizens of this state to express their beliefs in what they think best for all have, so far as we can determine at this stage of the game, rejected a proposal to stop unnecessary spending of funds from the state taxpayers pockets being spent on such a disease rage as Tuberculosis and many others transmitted by diseased cattle. There is also the alarming fact that thousands of animals are being slaughtered every year for the sole purpose of being burned or destroyed in other ways in order that disease might be eliminated. The old saying "a stitch in time saves nine" hits where it hurts here. The production of milk and meat is not peculiar to South Carolina. We're competing with a national industry and, as I see it, can't offer them much competition as long as we're filling our gullies with animals which produce meat selling at 70 cents a pound and milk at 23 cents a quart. Let's keep telling ourselves that we aren't "decadent" but at the same time act accordingly . . . which is hardly defeating a bill which would greatly aid in the prevention of a spread of communicable and contagious diseases. In the interest of the general welfare of the state? I wonder . . .

COVER

This month's cover shows Mr. Luther Smith of Easley reliving earlier days on the farm, while top-dressing a field of young wheat. Mr. Smith, who is now retired, is the grandfather of the photographer, Bennett B. Smith.

Suni-Citrus Pulp

is popular with
progressive
Dairymen
because . .

1. IT is an excellent cattle conditioner.
2. IT will take the place of BEET PULP.
3. IT has a tonic effect upon the animal.
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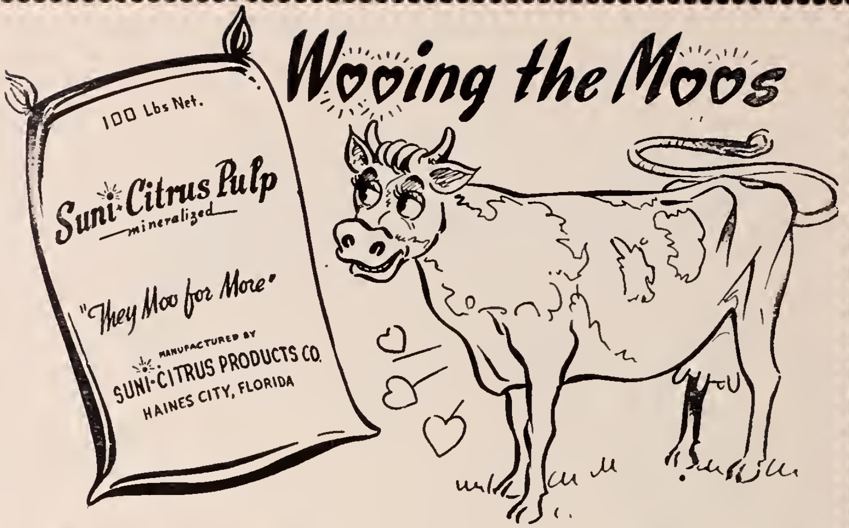
Wooing the Moos



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Use Pedigreed Seed for Higher Production

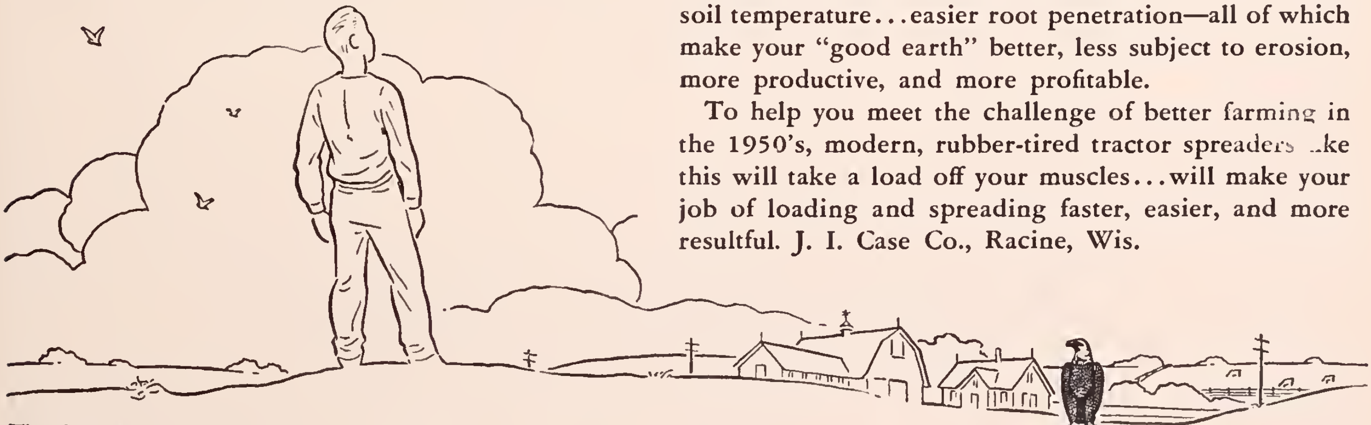
**MARETT'S
FARM & SEED COMPANY**
WESTMINSTER, SOUTH CAROLINA

ANOTHER CHALLENGE to Farming in the 1950's

● Never underestimate the value of manure in livestock farming. Ten years from now, when you tear the last calendar page from the decade of the 1950's, the size of your bank account may well be determined by the tonnage of manure you have spread on your farm.

For manure is truly a "magic" fertilizer. Well managed, it can return to the soil 75% of the plant foods that nourished your crops. Even more important, it can put new life into your land by adding organic matter for better tilth...greater water-holding capacity...higher soil temperature...easier root penetration—all of which make your "good earth" better, less subject to erosion, more productive, and more profitable.

To help you meet the challenge of better farming in the 1950's, modern, rubber-tired tractor spreaders like this will take a load off your muscles...will make your job of loading and spreading faster, easier, and more resultful. J. I. Case Co., Racine, Wis.



The features you want most in a spreader—easy loading, easy hitching, even spreading and long service—are combined in Case spreaders, both the popular T6 and the new, still larger T8 (shown at top). The hip-high box takes some of the lift out of loading; the self-raising hitch takes *all* of the lift out of hitching, allows tractor a running start during get-away. Steady apron travel gives even spread; beaters and widespread give thorough shredding. Like *all* Case equipment, both spreaders are built for many years of good service.

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WHEN TREATED WITH

ANTIROT 10X

And you save money, too, by doing your own mixing.

Cut down repair costs on buildings, bridges, and other wooden structures by preventing rot, decay and insect attack.

One gallon of ANTIROT will treat 22 posts six feet long and four inches in diameter at a material cost of only 18c per post (including cost of fuel oil).

No expensive equipment is necessary to do a good job right on your own farm. Any metal container such as two old steel drums welded together can be used as a treating vat.

ANTIROT is simple to use. Dilute 1 gallon with 10 gallons of fuel oil, agitate to obtain a uniform mixture and you're ready to begin treatment. Place posts to be treated in vat containing the dilute ANTIROT and allow to soak 48 hours.

The cheapest post will then give you years of service, eliminating the expensive repair and replacement of fences.

★

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A GUEST EDITORIAL

SOUTH CAROLINA AGRICULTURE of TOMORROW

By DR. R. F. POOLE
President, Clemson College

Today, world complexities are so indeterminate and unsettled that prophesying as to future trends requires more than ordinary care.

Some of our needs for agricultural improvement are evident. Getting South Carolina agriculture on the same standard as the United States agriculture is of first consideration. If California, which is sucessfully bidding for the South's cotton crop, is producing two and one-half bales per acre South Carolina must meet the challenge with similar yields per acre of good quality cotton or otherwise South Carolina agriculture will remain poorer. The same may be applied to milk, hogs, corn, chickens, and all other products. It does not mean that South Carolina must discontinue production of these products, but it does mean that South Carolina growers will remain poor while California growers will profit more. South Carolina agriculture cannot successfully compete with agriculture in other parts of the nation and in foreign countries unless yields and quality are as satisfactory in South Carolina as elsewhere. I am glad to say great progress has been recorded toward reaching the desired goals.

Our greatest hope, I firmly believe, is contingent upon diversification. Nature with freezes, floods, droughts, insects and diseases often seriously disturbs the economy of a state with the one-crop system. With diversified agriculture some success may be accomplished despite such conditions. The success of diversification in which new crops and a variety of crops make up the state's agriculture is definitely contingent upon a favorable market. Our Clemson scientists have shown that superior cheese can be produced in this state; that sesame, a great source of vegetable oil, can be grown well within the state; and that aromatic tobacco is already a huge success. It is clearly understood that all farmers cannot discontinue growing cotton and other crops with which they are familiar and plunge immediately into new crops, but a reasonable number of farmers may do so and find a ready market for their products. In perfecting diversification our thoughts go beyond the introduction of new crops and the processing of products from the crops of South Carolina farms. We are thinking about the farmer who has a small acreage and a large family. For example, the production of aromatic tobacco fits well into a small farm and large family situation because of the high income it brings per acre.

The natural resources of South Carolina are its forests, clays, and what can be produced on the farms and in the waters. It is important for South Carolina to have the industries to process the products of these resources if we are to receive maximum profit from them. It is much more important than we have realized and is essential to progress. The introduction of more industries affords humane values, because thereby those who do not like farming can find employment in a desirable vocation. It seems to me that South Carolina cannot reach its maximum economic achievement while eating foods produced by farmers of other parts of the nation. This also applies to the feeding of the flocks and herds. It would not be so important if South Carolina farmers did not have favorable opportunties and conditions to produce an abundance of all the major staple crops. The freezer locker and deep freezer units are a hopeful answer to the use of home food preservation. Much is yet to be done to perfect the quality and quantity of packaged products for the freezer systems.

By transportation and communication the people of the world have been brought into close relations. It is important to study world trends in agriculture not only of the past but also for the present and for the future. In agriculture we dare not keep on doing tomorrow what we are doing today. We must make South Carolina agriculture meet changes and meet them to our advanatge. If we do this we can go much farther than we do now toward living at home and diversifying. We must put forth every effort to make the soils of the state more fertile and to prevent the vital plant-growing substances from washing from the fields into the ocean. We must do more to process the natural resources of the state so that they may be sold advantageously.

R. F. Poole

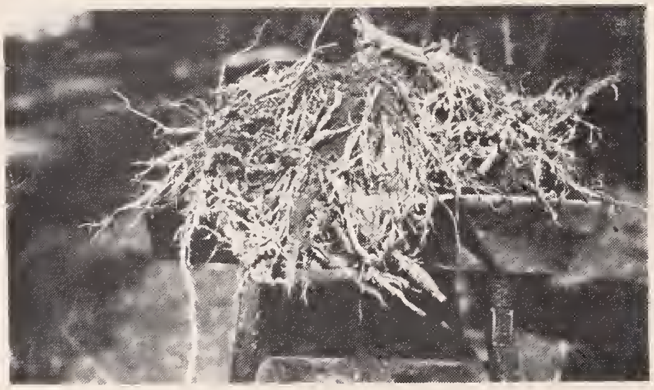
Farmers Challenge Microbe

Latest Methods for Counterattacking the Microbe Menace

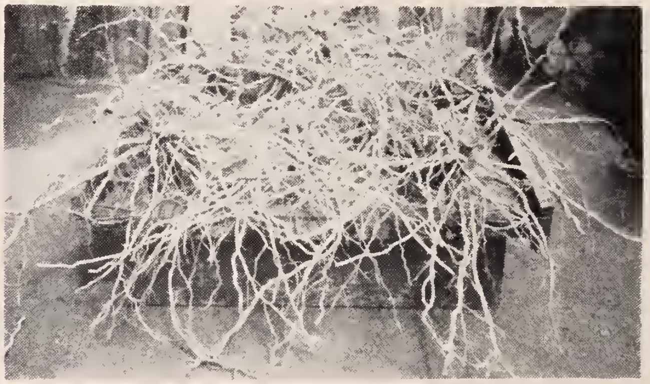
By HARRY LIGHTSEY
Agronomy '52

Today the farmer is nearing the completion of a long campaign to rid himself mechanically of crop pests. For many years he has known the secret of controlling weeds and parasitic pests that trouble him above ground. It is only within the past few years that the agronomist has learned the secret of controlling the countless millions of destructive organisms lurking underneath the surface of his fields.

One of the farmer's answers to these underground parasites is soil fumigation. Its development began in the pineapple fields of Hawaii. There the nematode problem had become so serious that it threatened to destroy the whole pineapple industry. It was entomologist Walter Carter that began the search for a soil fumigant that would kill the noxious organisms. He began by asking chemical companies for samples of their by-product waste-materials. After applying several of these, he found only one that was usable. This product, which was furnished him by The Shell Chemical Company of California, he named D-D, for its two principal constituents, dichloropropane and dichloropropene.



Shown in the illustration above are diseased roots of tomato plants taken from a garden in Newberry County. The roots were infected with the root-knot nematode.



Roots of tomato plants are pictured after Dowfume was applied. These roots came from the same garden as those appearing in the illustration on the left.

Shell soon began the production of D-D on a commercial basis. At first the pineapple companies used all that was produced. Alert and excited truck farmers on the west coast began to demand soil fumigants. Soon other companies, realizing the potential market for such a wonder chemical, began extensive experimentation with soil fumigants. Shortly the Dow Chemical Company of Michigan came on the market with a soil fumigant called Dowfume. This fumigant is effective against both nematodes and the larvae of insects that infest the ground.

Results received from soil fumigation have indicated its remarkable potentiality as an ally of the farmer. Pineapple yields in Hawaii have increased from 10 to 28 tons per acre as a result of its application. A grower of sweet potatoes who had previously been harvesting around 800 pounds per acre was able to gather about 13,800 pounds, an increase of 6½ tons per acre. Fruit trees grown on fumigated land yielded roughly ten times as many peaches as trees grown on unfumigated soil.

At present there are several methods of applying soil fumigants. The first method experimented with was to punch holes in the ground and to pour the liquid fumigant into them. From this idea was developed an attachment for the rear of a tractor. The fumigant applier covers about 10 feet and treats the soil about every 15 inches. The newest type of soil fumigant is in the form of a capsule. This capsule is composed of methylbromide. It is placed in holes in the ground about every 18 inches; then it is burst with a stick or pick handle. The ground being treated is then watered and rolled with a cultipacker.

The only field wide experiment with soil fumigation is being carried on in Colleton County. Mr. H. M. Lightsey fumigated 12 acres of strawberries last fall. While it is too soon to state definite results, the treated plot of berries has made much better growth and has developed much more extensive root systems than the untreated plot. Mr. Lightsey placed the cost of soil fumigation on a large, field wide scale at about $30.00 per acre. When the fumigant was applied, the men no-

(continued on page twenty-two)

The Art of Rose Growing

Pointers for the Growers of The "Queen" of Flowers

By WILLIAM J. JENKINS
Horticulture '51

The rose has been called the "Queen of Flowers" and its universal popularity is clearly shown by the fact that people attempt to grow roses in all parts of this and other countries. Roses are among the oldest of cultivated flowers and the frequent references to them in the Bible and other ancient writings testify to the prominent part they have played in the history of mankind.

Although the climate in sections of the United States offers some handicaps to rose growing, it is possible to select certain types of roses which can be grown in any section where other flowers are grown.

Roses thrive in fertile well-drained garden soils of types that range from heavy clay loams to light sandy loams and that are either slightly acid or neutral. Clay loam soils that are retentive of moisture, but from which an excess of moisture drains promptly, are probably suited to more kinds of roses than any other type. A deep topsoil from ten to eighteen inches, over a well-drained subsoil gives the best results. If the soil is shallow it is usually best to excavate some of the subsoil and fill in with topsoil. Good drainage is an absolute essential in growing roses. If soil is not naturally well drained, artificial drainage must be provided. This may be supplied by ditching or by providing stone or tile drains.

Roses respond to deep thorough preparation of the soil with an abundance of fertility. A good application of manure, preferably cow manure, at the time of preparation of the soil will give good results. If manure or compost is not available any organic fertilizer such as dried blood, cottonseed meal, or ground bone, may be substituted. In using manure or compost, an application two or three inches thick is desirable. Apply organic fertilizers at about 10 pounds per 100 square feet. Often it is well to supplement the above with a top dressing of 3 to 5 pounds of 5-10-5 commercial fertilizer per 100 square feeet. Sandy soils require heavier and more frequent applications of organic manures than do heavier soils. Roses require clean cultivation or well mulched soil.

Results and Roses

The man who wants a garden fair,
Or small or very big,
With flowers growing here and there,
Must bend his back and dig.

The things are very few on earth
That wishes can attain.
Whate'er we want of any worth.
We've got to work to gain.

It matters not what goal you seek,
Its secret here reposes:
You've got to dig from week to week
To get Results of Roses.

—Edgar A. Guest

When planting roses care must be taken to see that the roots do not dry out before planting. Set the roses in holes big enough so that the roots may be spread out in a natural position. Although roses are usually set out in the spring, in the South best results are obtained by planting in the fall as soon as the plants go into the dormant stage. Plant the roses about one to one and one-half inches deeper than they grew originally. Pack the soil firmly around the roots and water lightly if you water at all. Approximately one-half to two-thirds of the wood should be removed from rosebushes when they are planted. Prune out weak branches and long canes should be cut back so the wind will not whip them around and loosen the plant.

Many roses are more successful if they are protected during the winter by placing a mound of soil about the stem. This should be removed in the spring before growth starts.

In addition to good culture, protection from insects and diseases is required by many kinds of roses. This protection consists of timely spraying to control three principal types of pests—sucking insects, biting insects, and diseases affecting the leaves and stems. Even more practical than identifying the specific insect or disease attacking the rosebush is persistently applying three types of material—poison on the leaves to guard against chewing insects, fungicides on leaves and stems to prevent the entrance of diseases, and contact insecticides applied when sucking insects are found. For more detailed information concerning the insects and diseases attacking roses, contact the Extension Service at your state agricultural college.

(continued on page twenty-eight)

Parity Prices -- What Are They?

The concept of parity relative to agricultural prices is not new. As a factor in our agricultural policy, the concept of parity dates back to the early 1920's. As a permanent part of our agricultural legislation, the provision for parity prices dates back to the Agricultural Adjustment Act of 1938. These legislative provisions have been substantially changed and amended by the Agricultural Acts of 1948 and 1949.

The significance of parity prices as a part of our agricultural policy concerns not only those actively engaged within the agricultural sector of our economy, but every member of our society who must either buy or sell agricultural goods and commodities. Parity price is defined as "that price which will provide the producer of a unity amount of goods with the same purchasing power as that unit of goods would have provided when sold during some base period."

To illustrate let us assume that in 1938 (using this as a base) a farmer was able to purchase a tractor with five bales of cotton. With equality of purchasing power, the same farmer should be able to purchase a similar tractor today with the same amount of cotton. The price at which cotton must sell to allow him to do so would be the parity price for cotton.

Before the amendments of the Agricultural Acts of 1948 and 1949, parity prices were calculated by a relatively simple system, now commonly referred to as the "old" formula. The essentials of this system were a base period, and an index of prices paid by farmers.

The base period for most farm products was the five years of 1910-14. This period was chosen because it seemed to represent a period of equality between prices farmers received and the prices they paid for farm machinery, clothing, etc. This base period then serves as the yardstick by which to measure the extent of changes in prices during any other period.

The index of prices paid by farmers is obtained by comparing the average prices paid by farmers at any given time with the average prices paid during the base period. The average of prices paid during the base period is taken at 100 and average of prices paid at any given time is proportionately expressed and in similar terms. This index of prices paid multiplied by the average price of any commodity during the base period gives the parity price for that commodity.

By CALVIN C. TAYLOR
Agricultural Economics '50

As an example, the average price of cotton during the base period was 12.4 cents per pound. In January 1950, farmers were paying 2.41 times as much for commodities purchased as they paid during the base period. This includes such purchases as feed, machinery, fertilizer, taxes, and interest. With the average of prices paid during the base period taken as 100, the index of prices paid by farmers in 1950 stands at 241. Therefore the parity price for cotton is obtained as follows:

$0.124 x 2.41 equals $0.2988 (parity price)

As previously stated the Agricultural Acts of 1948 and 1949 provided for significant changes in the method of calculating parity prices. These changes resulted primarily from stern criticism of some parts of the system used in calculating the "old" parity formula. One of the major criticisms was of the way in which the average of prices paid by farmers, was calculated. In arriving at the average of prices paid by farmers, the individual items were "weighted" upon the basis of expenditures made by farmers for that item during the years 1924-29. It is readily apparent that the change in the technology of production since that time makes the period now antiquated for this purpose. The Agricultural Act of 1949 provides that the years 1937-41 be used as a basis for the weights used in calculating indexes of prices paid by farmers for any year since 1935. The act also provides that wages paid by farmers for labor shall be included in calculating the index of prices paid under the "new" formula. Because of the previous low levels of farm wages, they were not included in the old formula.

The second major change made by the act of 1949 is the substitution of an "adjusted" base price for the base period prices used in the "old" formula. This change is made for a seemingly adequate reason. The object of parity is to show the proper relationship between prices received by farmers and prices paid by farmers. It should also reveal the proper relationships among the individual commodities sold by farmers. For instance, it has been quite evident during recent years that consumer demand for livestock products has increased relative to the demand for some other farm products. Calculation of parity prices by the "new" formula more adequately reflects this relationship. Instead of using the average price of a commodity during a base period as in the "old" formula, the new formula uses an "adjusted" price. This is obtained by the following two steps:

1. The average price of a specific commodity during the preceding 10 years is calculated.
2. The average price obtained in step one is divided by the average of the index of prices received for the same ten-year period.

The preceding ten years as specified in step one means that ten years preceding the year for which parity is being calculated. For parity prices of 1950 the years 1940-49 would be used, for 1951 the years 1941-50 and so on. This is an attempt to keep the

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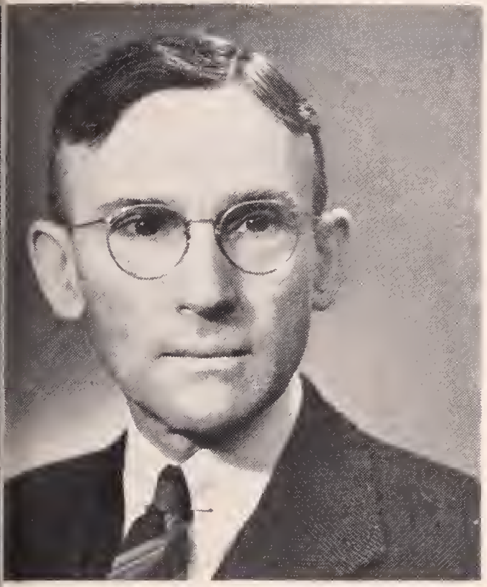


THE AGRARIAN PRESENTS

DR. GEORGE M. ARMSTRONG

☆ Scientist

☆ Professor

☆ Civic Leader

By **HANS F. PHILIPPSTHAL**
Botany '51

George M. Armstrong received his B.S. degree from Clemson A. & M. College in 1914. He returned that fall to a graduate assistantship before beginning work toward his Master's degree, which he received from the University of Wisconsin in 1917. Again he returned to Clemson, to become an instructor in Botany for the next year. In 1918 he became an Extension Plant Pathologist in the state of Alabama. He spent one year there before accepting a fellowship at Washington University, St. Louis, Mo., where he received his Doctor's degree in 1921. For the next three years Dr. Armstrong was Assistant Professor of Botany at that institution. Dr. Armstrong, being a very intrinsic man of science, left the teaching profession and returned to his home state to become head of the Division of Boll Weevil control at the S. C. Experiment Station in Florence. This is where the Armstrong's settled for the next four years. In 1928, Dr. and Mrs. Armstrong with their two sons moved to Clemson, S. C. where Dr. Armstrong became head of the Botany and Bacteriology Department. And this is where the Appleton, S. C. contribution to science and education remained.

Since 1924 Dr. Armstrong has been active in the field of Phytopathology. He worked in Florence for four years on Boll Weevil control. After Dr. Armstrong came to Clemson he continued to be active in the research on plant diseases. From 1936 to 1948 he served as chairman of the Cotton Disease Council and was one of the main contributors to the disease control of cotton in this area. For his outstanding work in plant diseases Dr. Armstrong was elected president of the Southern Section of the American Phytopathological Society in 1938. Another honor was bestowed upon him during the war when he was elected to serve on the War Emergency Committee of the Southern States from 1942 to 1945. This unusual distinction has been Clemson's in both of the two World Wars. Dr. H. W. Barre, who was Head of the Botany Department during the first World War, was also the representative from the Southern States during that period. Dr. Barre, incidentally, has recently retired from the position he held with the Cotton Research Department of the United States Department of Agriculture and has returned with his family to Clemson to make his home here during his retirement.

Other national associations claim Dr. Armstrong as a member. He is an active member of the American Association for the Advancement of Science, American Phytopathological Society, American Society of Plant Physiology, Botanical Society of America, and the South Carolina Academy of Science. He is also a member of Sigma Xi, Phi Sigma, Clemson Fellowship Club, Anderson Rotary Club, and has acted as the adviser of the local chapter of the Alpha Zeta.

Dr. Armstrong has written a total of fifteen publications since he has been at Clemson. He has written various articles for the Journal of Agriculture Research and South Carolina Experiment Station Bulletins. And, too, he has written articles for the Phytopathological and the Plant Physiology Journals of the United States.

Despite all these extra activities, Dr. Armstrong still finds time to teach Plant Pathology to the seniors and spend some time on his hobbies. As could be expected, his favorite hobby is working in his flower and vegetable gardens. A great deal of his time in the evenings is spent working with the local Boy Scout troop and on the county advancement committee for Boy Scouts. Dr. Armstrong's most prized hobby is really not a hobby but a contribution to science and man. It's his help and influence to graduating students to continue with their education by completing graduate school. During the time at Clemson, Dr. Armstrong has influenced some ten men to complete graduate work. His contributions to science and education, and his interest in various societies, clubs and hobbies do indeed make Dr. George M. Armstrong worthy of his recent selection to Who's Who in American Education.

FREE SOIL SERVICE FOR FARMERS

Soil Deficiencies Determined at Clemson Laboratory

By **W. W. ALLEN**
Agronomy '51

The question of South Carolinians in the last few years has been—'how to keep 'em down on the farm? This statement refers to more than a matter of jesting, because the trend of recent years has made it a very real problem.

Our farmlands have been so depleted, due to slow improvement of economic conditions and poor farming practices, that our farm youth have found more enticing opportunities in other fields of endeavor. For this reason, one of the prime objectives of our agronomists is to enlighten the farmer to the knowledge of the needs of his soil. To this end, the Soil Testing Service Laboratory at Clemson is devoting its efforts.

(Photo by B. B. Smith)

Pictured is Miss Louise Brown of the Agronomy Department testing a soil sample in the Clemson soil testing laboratory.

This Soil Testing Service at Clemson is under the supervision and direction of the Agronomy Department. It furnishes free service to all farmers in the state, and, except for specific cases, only the pH, available phosphorus and potassium tests are run.

Soil samples may be taken from farms throughout the state by the farmers themselves. The samples taken by the farmers should be representative of the different areas of his farm. On gathering these samples, they should be placed in ice cream cartons (pints), labeled with the farmer's name and address, and accompanied by a statement regarding the crops tentatively planned for the specific area from which each soil sample was taken.

When these soil samples are received by the Soil Testing Service, they are subjected to several tests, as previously stated. Before any of these tests are made, samples are sieved, passing through a 20-mesh screen. Samples are then extracted with a reagent, which will be calibrated with crop response, so that what is available to the plant will be removed from the soil.

One of the tests to be considered is the phosphorus test. After the sifting procedure has been carried out, ammonium molybdate is added to the solution. This forms a compound with phosphorus. The phosphorus ammonium molybdate is then reduced with a stannous chloride solution, or a tin stick. The intensity of the blue color developed is directly proportional to the amount of phosphorus available to the soil.

The potassium test uses the same extracting reagent. Sodium cobaltinitrite and a volume of ethyl alcohol equal to that of the extract is added. The amount of turbidity is in equal proportions to the amount of P or K.

The rapid or quick chemical tests, used in determining soil deficiencies, is not as accurate as the analytical procedures. At present, this test is the most popular of any employed in determining the fertilizer needs of soils.

When such tests are standardized against field results and employed intelligently they do have a diagnostic value, but reliability on them for all crops on all types of soils cannot be claimed for any single test.

In the hands of a well-trained and experienced technician, such as Mrs. W. B. Aull, wife of the former Vice-Dean of Agriculture, who also taught Botany at Clemson during the first World War, tests of this kind have proved a valuable aid to better fertilizer recommendations.

Up until the present time, no one chemical criterion can be envoked in appraising the supplying power of all soils for a specific nutrient element. Due to climatic conditions, nitrates do not accumulate to any appreciable extent, therefore nitrate tests are not run.

Much more is accomplished in the soil testing service than could possibly be described here, but it is hoped that some idea of the importance of this service has been conveyed to the farmers of South Carolina.

It should be our ultimate goal to bring all of our farmers to take advantage of the valuable service, which means so much to the future of our agriculture.

In the future, we can expect the soil testing service to do its share in the improvement of and the attainment of increased productivity of our depleted soils, and further justify farming as a profession in the eyes of our farm youth.

Ascochyta -- New Cotton Threat

CLEMSON SENIORS INVESTIGATE FUNGUS DISEASE

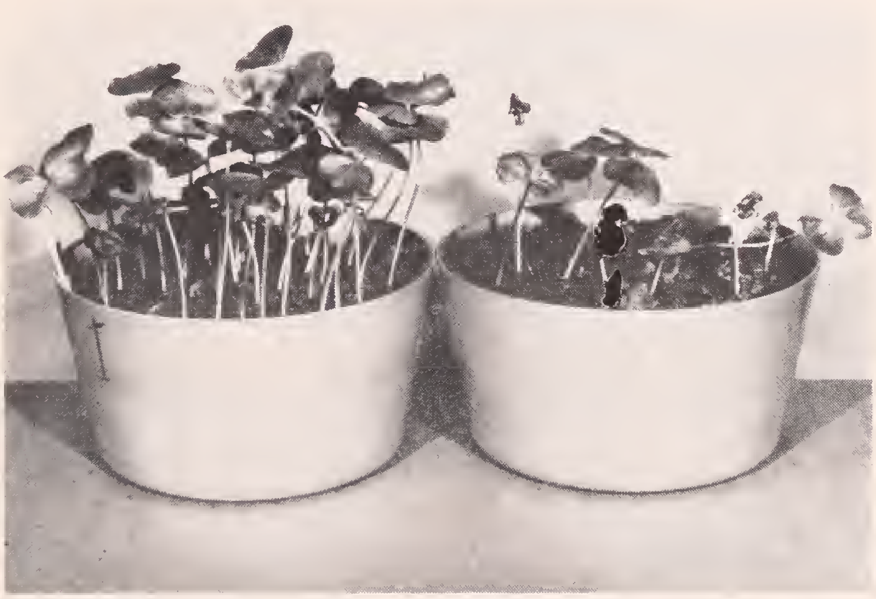
Since 1947 South Carolina farmers and the South Carolina Agricultural Experiment Station plant pathologists have been concerned about locally severe losses by a disease of cotton caused by the Ascochyta fungus. Actually, this disease is a relatively old one. The casual organism, Ascochyta gossypii, was obtained from cotton leaves and was named by H. Sydow in 1908. Other information indicates that the disease has been present in South Carolina for forty years, although under other names than the Ascochyta disease.

By WILLIAM B. BOYKIN
Agronomy '50

Dr. J. A. Elliott of the Arkansas Experiment Station conducted the first intensive study of the disease during 1920 and 1921. His interest was aroused by an outbreak in Arkansas of what seemed to be an unreported disease of cotton. The damage produced by this epidemic was locally very severe. In some restricted areas the stand of cotton was almost destroyed; while in other areas the stand was reduced and the plants stunted.

Until recently, this disease has not been reported as a cause of economically important losses in South Carolina and adjoining states. No appreciable losses were reported in this state from 1935 to 1946. During the latter part of May and June for the past three years, the disease has caused severe damage to young cotton plants in northeastern and northwestern counties of South Carolina. It has also caused losses of stands in Georgia and Alabama.

This recent incidence of the Ascochyta disease has aroused the interest of the plant pathologists in the possible causes of the outbreaks of the disease. The erratic occurrence of the disease seemed to indicate that it was associated with certain environmental conditions. To obtain definite information on the relation of temperature and the moisture to the prevalence of this disease, C. M. Brown and W. B. Boykin, two seniors who major in agronomy, have been carrying out experiments in the plant pathology laboratories in which cotton seeds inoculated with the Ascochyta fungus have been germinated and incubated at definite temperatures.



Comparative results when cotton seeds not inoclated (left) and those inoculated (right) with Ascochyta gossypii were grown at 21° for 14 days.

Elliott described the disease as a blight, and reported that natural and artificial infections have been found on all the above-ground portions of the plant, except the flowers. The lesions were found most frequently at the point where the leaf petioles were attached to the stem. Infection seemed to occur most readily on the minute "leaves" and buds of this area. Often when the infection occurred in the terminal bud, the upper portion of the plant was killed; and new top growth, when the plant was not killed, had to originate from buds lower on the stem. Such plants typically have several main stems above the point of the original infection. Stem and bud lesions may be sufficiently severe to kill the plants. The stem lesions usually enlarge more rapidly longitudinally than transversely. The fungus may also cause diseased spots on the bolls and leaves. The spots on the leaves are generally rounded in outline, ashy to tan in color, brittle, and from 1/8 to 3/4 inch in diameter.

The severity of the losses seems correlated with definite weather conditions. Of the early epidemics observed by Elliott, one in 1915, the other in 1920, each took place during periods of cloudiness, prolonged rainfall, high humidity, and relatively cool temperatures for spring or summer months. Also in epidemics in South Carolina in 1947, 1948, and 1949, the losses from the disease stopped immediately upon a change to hot dry weather. Leaf infection

(continued on page twenty-four)

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Are Chemical Fertilizers Really Harmful?

An Examination of The Claims Made Against Commercial Fertilizers

By ALAN B. SIBLEY
Agronomy '51

In recent years a new cult of agriculturists has appeared. These agriculturists go by the title of Organiculturists, or "organic farmers" or by some other name which implies that they farm without the use of water-soluble commercial fertilizers and fertilize their crops solely with such materials as green manures, animal manures, tankage, fishmeal, composts and minerals in the ground rock form. These organic farmers have become rather numerous, and are publishing their own literature. Much of this literature is sound, for all agriculturists realize that organic matter is a valuable constituent of all soils; however, the Organiculturists are not satisfied in telling other agriculturists the value of organic matter, for they are publishing pamphlets and magazines which unfairly picture chemical fertilizers as being detrimental to the soil, the crops from which being very detrimental to human health. The nutritive value of organic matter is also sometimes exaggerated, and there is no basis for many of the facts presented against commercial fertilizers which are not in the form of organic matter. Practically all soil chemists need no explanation concerning these misleading facts and are able to disprove them in the light of modern research. To the layman, however, this literature can be very deceptive and can induce him to accept the false assumption made regarding the harmful effects of chemical fertilizers. In order to clear up this situation, it is necessary to examine the claims made against chemical fertilizers in an effort to arrive at an explanation that exonerates chemical fertilizers to the layman's satisfaction.

One of the main claims that the organic farmers publicize is the belief that the use of chemical fertilizers lowers the fertility and brings about the erosion of our soils. To substantiate this belief, they give results from various experiments that they have made or observed. For example, they will use two crop plots, one fertilized solely with organic matter, the other fertilized solely with chemical fertilizers. The results of the experiment show that the plot fertilized with the organic materials produced the greater yield, the crops from which being higher in quality, and the Organiculturists conclude that these results are sufficient evidence to say that chemical fertilizers are making our soils poorer and producing crops which do not provide us with the correct amounts of nutrients to maintain our health. The experiment proves nothing of the kind. It only proves that organic matter was needed by the soil in the two plots more than was the addition of additional plant nutrients provided by the chemical fertilizer. The chemical fertilizers alone could not be expected to improve the physical condition of the soil to the extent that the organic matter does. The dealers of commercial fertilizers do not pretend to offer their chemicals as a complete substitute for organic matter as the experiment was set up to show. Chemical fertilizers will not take the place of organic matter in the soil, for a certain amount of organic matter is necessary to condition the soil from a physical sense in order that the plants may function properly in their environment and be able to utilize the nutrients offered in chemical fertilizers. In order to be accurate, the experiment should have been composed of three plots, the third being fertilized with both the chemical and the organic fertilizers. This third plot would produce the greatest quantity and quality yield, for the organic matter would improve the physical condition of the soil and, together with the chemical fertilizers, supply nutrients. In some cases, however, the application of chemical fertilizers to inherently rich soils, which contain an abundance of organic matter, may not produce a profitable increase in yields, for enough nutrients are already in the soil, but the application of chemicals to inherently poor soils, as some of those found here in the South where organic matter is not a stable constituent in the soil, will be very profitable.

Many farmers plant row crops on easily erodable land and apply chemical fertilizers to these crops. When the land erodes, the blame cannot be placed on the chemical fertilizers, but should be placed on the farmer for not providing adequate protection for his land. It is not the presence of chemical fertilizers but rather the absence of organic matter and other recommended farming practices which causes the land to erode.

The Organiculturists say that chemical fertilizers bring about an over-development of cellulose in plants which causes growth to be too woody and decreases the protein content. This is not always true. The amounts of cellulose, carbohydrates, and proteins in plants depend largely upon the amount of nitrogen available to the plant. A high content of nitrogen makes for less cellulose, less carbohydrates and more protein; consequently, the amount of protein in plants can be regulated by applying a chemical fertilizer containing nitrogen. Plants absorb nitrogen in the nitrate or ammoniacal form. The nitrogen present in organic matter does not become available to the plant until the organic matter has been broken down, at which time the nitrogen is available in the nitrate or ammoniacal form; hence, it is difficult to conceive that the Organiculturists object to the use of the nitrate and ammoniacal nitrogen found in commercial fertilizers, when the plant is going to get the nitrogen in the same form from organic matter.

(continued on page twenty)

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Ag School Senior Spotlight

C. C. TAYLOR, Agricultural Economics major of Mauldin, S. C., came to Clemson in February 1947 after serving in the Navy in the South Pacific. Taylor is better known by his friends as "C^2". He is a member of Phi Eta Sigma, Alpha Zeta, and is serving as vice president of the Agricultural Economics Club. Taylor was also the winner of the 1949 Borden award. After his graduation in June, Taylor plans to remain at Clemson for another year, when he will become a candidate for his Masters degree.

JAMES K. PRICE, Animal Husbandry major of Gaffney, S. C., is one of the most outstanding students in the School of Agriculture. James came to Clemson in September 1948, after graduating from Gardner-Webb Junior College in Boiling Springs, N. C. He is secretary of the Block and Bridle Club, member of Alpha Zeta, Phi Kappa Phi, and the Cherokee County Club. In 1949, he was awarded the Danforth Fellowship. In further recognition of his high scholastic record and his interests in social and professional organizations, he was elected to membership in "Who's Who in American Colleges and Universities." He plans to continue his formal education, and is interested in research in animal nutrition.

SAM W. HASTINGS of Norfolk, Va., is one of the most outstanding horticultural seniors in the School of Agriculture. After serving in the Navy in the South Atlantic he entered Clemson in February 1947. "Wild Goose Willie", as he is known to his friends, is a member of Alpha Zeta and the Horticulture Club. He is also attached to the "Weekend Warriors" of the Naval Air Reserve in Atlanta, Ga. Sam plans to continue his studies in horticulture and work toward his Masters degree.

CARL H. THOMAS, Agricultural Engineering major of Holly Hill, entered Clemson at the beginning of the second semester of the 1946-47 school year, after serving with the Marines in the Pacific theater. Carl has recently been elected censor of Alpha Zeta. He is also secretary and treasurer of the American Society of Agricultural Engineers and a member of the Tri-County Club. Upon graduation, he hopes to work with an implement company.

W. BAYNARD BOYKIN'S record in Agronomy at Clemson has been most outstanding. He came to Clemson from Boykin' S. C. in September 1946, after serving with the Army in the Philippine Islands. His clubs and activities include membership in Blue Key, Phi Kappa Phi, the Canterbury Club, and "Who's Who in American Colleges and Universities". Boykin is also Chancellor of Alpha Zeta and president of the Agronomy Club. His favorite pastimes are hunting and fishing. Upon graduation, Boykin plans to work in the fertilizer field.

BETWEEN

Prof. J. P. LaMaster (third from left) welcomes back to Clemson E. C. Elting, former staff member of the Clemson Dairy Department, who is now associate chief of the Office of Experiment Stations, U. S. Department of Agriculture. Looking on, from left to right, are M. H. Fohrman, Bureau of Dairy Industry, U.S.D.A., Dr. I. W. Rupel of the Texas Experiment Station, College Station, Texas, Mr. LaMaster, Mr. Elting, and Mr. R. A. McGinty, Vice-Director of the S. C. Experiment Station.

DAIRY SCIENTISTS MEET AT CLEMSON

Earlier this month Dairy scientists from six states, Puerto Rico and the U. S. Department of Agriculture met at Clemson to discuss further plans for developing a new type of dairy cattle especially adapted to southern conditions.

The regional dairy breeding project, now in its second year, was organized to develop a type of animal that would possess heat tolerance and resistance to insects commonly found in the South.

The visiting research workers were shown some of the crossbred animals that have so far been developed at Clemson by crossing the Brown Swiss, Jersey, Guernsey and Holstein breeds.

Cooperating in the project are the state experiment stations of Arkansas, Georgia, Louisiana, South Carolina, Tennessee, Texas, and Puerto Rico and the Bureau of Dairy Industry of the U. S. Department of Agriculture. Chairman of this Technical Committee of the Southern Regional Dairy Cattle Breeding Project is Prof. J. P. LaMaster, Head of the Clemson Dairy Department, with Dr. I. P. Rupel of the Texas Experiment Station as secretary.

NEW MEMBERS OF ALPHA ZETA

The Clemson Chapter of Alpha Zeta, the National Honorary Agricultural Fraternity, took in fifteen new members Thursday night, March 16, at which time the final initiation was held. The new candidates under-went an informal initiation during the week prior to March 16. The new members are: Burton G. Maxfield, AH senior of Hodges; Leonard Ray Allen, VAE sophomore of King's Creek; Wyndham M. Manning, Hort., junior of Columbia; Theiron Donald Wilson, AgEd junior of Cades; Harvey H. Wheless, AgEd senior of Thomaston, Ga.; Charles P. Hamer, Agron. junior of Tatum. Other new members were Owen F. Huff, Agron. senior of Branchville; John W. Gregory, Jr., Agron. junior of Oswego; Leonard D. Reynolds, VAE post graduate of Timmonsville; Lynwood G. Melton, AH senior of Lyman; Raymond L. Boozer, VAE sophomore of Leesville; William H. Craven, Agron. senior of Bamberg; Justus M. Curry, Agron. senior of Graycourt; H. M. Lightsey, Agron. sophomore of Columbia.

JUDGING TEAMS

Spring plans for judging contests have been made for Clemson seniors, sophomores and freshmen. The Senior Judging Team is now hard at work, practicing for the judging contest to be held at Louisiana State University, April 28. Five seniors will represent Clemson, and these men will be selected by an elimination to be held here in early April. Clemson's Freshman Judging Team, sponsored by the Block & Bridle Club, will be selected here May 21. All agricultural freshmen and sophomores will be eligible to enter this selection contest, if they have not taken a course in junior judging. Trophies and medals will be awarded to the winners of this contest.

E FURROWS

NEW NAME FOR A.H. CLUB

At a recent meeting of the Clemson Animal Husbandry Club, the members voted to incorporate the club into the National Animal Husbandry Fraternity, and to change the name of the local club to the "Block and Bridle." This has been a major issue of the club for several months, and the vote was unanimous in favor of the hook-up with the national organization. Most of the agricultural schools in the nation are represented in the national fraternity. A new constitution had to be drawn up to comply with the national constitution of the fraternity. The club will add to the executive committee a social chairman, a marshal, and a faculty adviser.

Prior to the war, the Clemson A.H. Club was a member of this national fraternity.

FUTURE FARMERS ELECT OFFICERS

At a recent meeting of the Clemson chapter of the Future Farmers of America officers for 1950 were elected. Those elected to office were Thomas E. Bankhead, junior from Sharon, president; Charles F. Carmichael, junior from York, vice-president; Robert K. West, junior from Cameron, secretary; and J. W. Westmoreland, junior, treasurer.

DEMONSTRATION AT EDISTO

The latest equipment and techniques in land clearing, drainage, ditching, leveling, terracing, and pasture preparation were shown during a land development demonstration held at the Edisto Experiment Station at Blackville, March 11.

The all-day show included demonstrations of bulldozers, tile trenchers, root rakes, land levelers, motor graders, post hole diggers, and tree setters.

Inexpensive fence post treatment methods and dynamite ditching were also shown to the many visitors who attended. In addition, the latest equipment for pasture preparation, liming, fertilizing, and seeding were in operation throughout the day.

One of the day's highlights was the display of what is reported to be the world's largest tractor, a 20-ton giant, which was used in the land-clearing demonstration. Sponsoring the demonstration was the State Soil Conservation Committee, composed of the Soil Conservation Service, the Clemson Extension Service, and the South Carolina Experiment Station, in cooperation with various heavy machinery dealers in the state.

Short talks were made by Governor J. Strom Thurmond, Dr. R. F. Poole, Dr. H. P. Cooper, Senator Edgar A. Brown and Representative Sol Blatt.

A barbecue luncheon was served to approximately a thousand visitors.

AH PROFESSORS TO RETURN

R. R. Ritchie will return to Clemson this summer to resume his duties as Professor of Animal Husbandry in September. For the past two years Prof. Ritchie has been serving as Livestock Specialist with the Occupation Authority in Japan.

Draytford Richardson will also return to Clemson in September to be Assistant Professor of Animal Husbandry. Prof. Richardson will receive his Master's degree this summer from Iowa State College, Ames, Iowa.

DR. FARRAR TESTIFIES

Dr. M. D. Farrar, Head, Department of Zoology and Entomology, testified on March 23rd before the Food and Drug Administration in Washington. Dr. Farrar presented results of research conducted by the experiment station and gave recommendations for the use of insecticides and fungicides. This was part of the current investigation on harmful effects of organic insecticides.

AG. ENGINEERS MAKE TRIP

The Clemson Student Branch of the American Society of Agricultural Engineers made a field trip to Atlanta, Georgia last Thursday, March 23. The students visited the General Motors Assembly Plant and observed the latest large-scale engineering methods. The students also visited the new John Deere Plow Company branch house where up-to-date farm implements are assembled.

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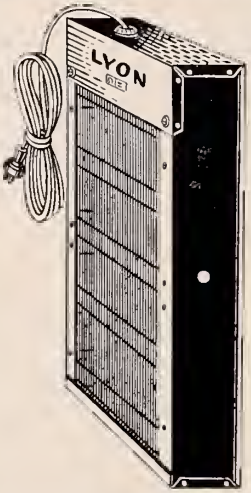

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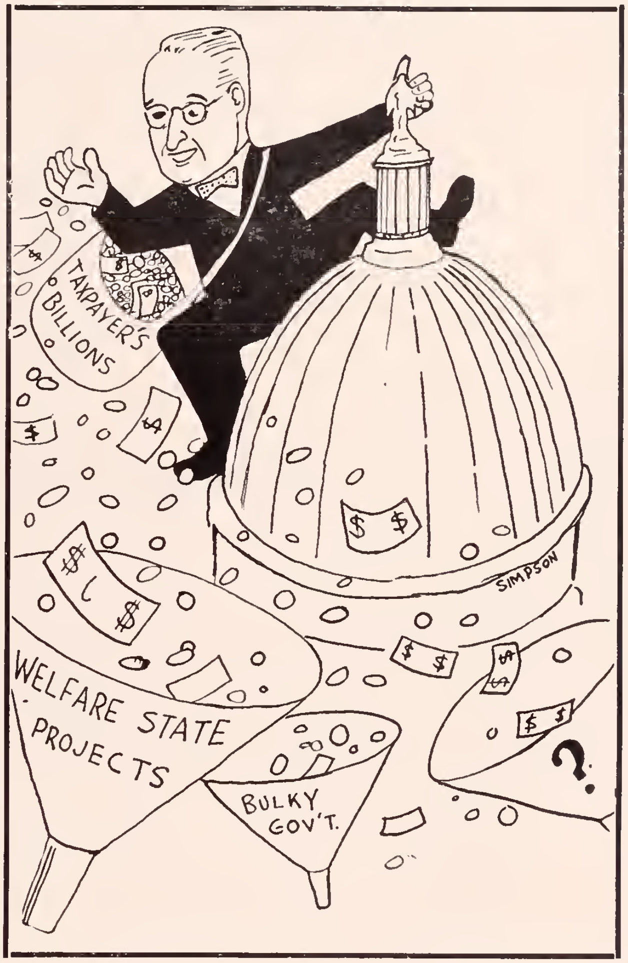
Agrarian Philosophy

By

The Editor

President Truman, in his state of the union message, stated that in another fifty years the U. S. should reach a national income of approximately one trillion dollars yearly. An economist recently plotted a chart, using the last half-century's growth as his basis, and projected national income to the year 2000 (fifty years hence). He found that the national income would surpass Mr. Truman's estimate and would reach the two trillionth mark. Using the same basis, he plotted federal receipts (taxes) and found that it met the national income line at the year 1990. From then on taxes exceeded the national income at a ever-widening span. Taxation and spending seems to be the order of the day in Washington these days. But we must not forget that spending means more federal aid, more federal employees, more handouts, and hence more VOTES.



Quite a howl has been raised over the present farm program and the "potato stinkeroo". Millions of bushels of government bought high price potatoes are being dumped, fed to hogs, and made into fertilizer. One of the biggest farces of the program was when the government sold a Spanish merchant fifty thousand tons of potatoes at one cent per hundred pounds. The merchant promptly shipped the potatoes to Spain and sold the sacks for thirty cents each . . .

Now why do we hear so much about the present farm program? It is the opinion of some that the whole furore is a technique projected by the administration itself, with the intention of focusing public attention on the potato scandal, and thereby convince them that it's time to try the Brannan plan. Now as you know, Mr. Brannan would take off all supports on all farm produce and let prices fall to a level determined by supply and demand. Then, under his plan, he would pay subsidies to the farmer to adjust the difference between price of farm products sold and that proportion of parity that Mr. Brannan should decide the farmer should have.

No one knows just what per cent of the potato crop is bought by the government, but a conservative estimate would be ten per cent. This means the tax-payer is paying for an estimated ten per cent of all potatoes produced in the United States under the present system. Under the Brannan plan with all supports off, and the price of potatoes seeking an international level, my guess is that the price of potatoes would drop to about half their present price. Then, if the subsidies plus the market price were equal to the present support price, the American tax-payers would be paying **half the cost** of all potatoes grown in the U. S. The same would be true for all farm commodities.

We don't condone either the present farm policy or the proposed Brannan plan, but it seems that the present plan would be less of a burden on the tax-payer than the proposed plan . . .

Opinions expressed on this page are those of the editor and do not necessarily represent those of the School of Agriculture or the College.

Chemical Fertilizers

(continued from page thirteen)

These strictly "organic farmers" are principally against the use of water-soluble chemical fertilizers, and they advocate the use of water-insoluble chemical compounds, such as ground rock phosphate and other mineral rock forms which contains potassium and the trace elements. They apparently realize that organic matter alone cannot always meet the full requirements for crop growth. These ground rock fertilizers, become slowly available to the plant, and when they are available, many are in the same forms as those nutrients supplied in water-soluble chemical fertilizers. The chemist can extract these elements from their crude forms more quickly than if similar reactions are carried on in the soil. The Organiculturists still maintain that chemical fertilizers are harmful and tie up certain trace minerals, which then become unavailable to the plant. This could be true if improper fertilization practices are followed, but if proper fertilization practices are adhered to, the nutrients in the soil will be in balance, and little tying up will occur.

Besides tying up other nutrients, the organiculturists claim that the soluble chemicals then "force" their way into plants. "Forcing" apparently means that the plants do not want these nutrients and already have sufficient amounts of them and that these unwanted nutrients then substitute themselves for other nutrients really needed by the plant. If certain nutrients are not present in the soil or remain in an unavailable form, sometimes other nutrients will substitute themselves for the lacking nutrients, 'but if proper fertilization practices are followed, the nutrients will be in balance and will be available.

Crops can be grown in the complete absence of organic matter. A new phase of agriculture, hydroponics, works on the principle of supplying nutrients to the plants by chemical fertilizers alone. An artificial culture medium is used to take the place of soil, and the medium is regulated to supply to the plants grown adequate nutrients. Hydroponics produces crops of unsurpassed yields and quality. Natives in the South Pacific and other areas of the world, where these soils are too inherently poor to produce crops, have lived successfully from produce grown by hydroponic methods. Our soils need organic matter and cannot produce good crops following the applications of chemical fertilizers alone, but hydroponics prove that chemical fertilizers do not lower the nutritive value of crops, as is claimed by the Organiculturists.

The Organiculturists point to China as an example of strictly organic farming to show others that those who eat foods grown organically are less susceptible to certain diseases. Of all the places in the world to point to, the Organiculturists certainly picked the wrong country as an example of a type of farming that eliminates diseases. China is a country of many famines and diseases and needs its agriculture improved. The Chinese may not be susceptible to certain diseases, for where in the world can one find a better example of the "survival of the fittest"? The Organiculturists also say that the sulfur in chemical fertilizers may cause cancer. Until more is learned about cancer, placing the blame on chemical fertilizers is only an assumption. The sulfur obtained by the plant from organic matter decomposition is largely in the same forms as that supplied by chemical fertilizers.

In order to think clearly, one must read clearly. Oftentimes the literature written against the use of commercial fertilizers is misleading. Many articles, whose titles make claims against chemicals, give examples of the improvements in health experienced by those who eat foods grown without the use of chemical fertilizers. The use of chemical fertilizers beforehand is implied, but no actual statement is made as to what was eaten before organically produced foods were consumed. Those who ate the organically grown foods may have been eating only a handful of rice a day, but the reader can easily assume that foods grown with chemicals were eaten, as implied in the literature. Any improvement in nutrition, whether organically grown foods or foods grown with the aid of chemicals are used, will cause bodily improvement to those who eat the more nutritive foods. Until the necessary facts are known, it is unwise to make assumptions.

In summary, chemical fertilizers are not harmful to use. They can be put to a good advantage when used along with organic matter. Poor soils especially need the boost that the chemical nutrients offer, for organic matter is not too stable in some soils, and its advantages will be limited. It is not always practical or profitable to follow a large scale organic farming program; hence, for best crop growth, all of the organic matter possible—when it is practical—should be turned into the soil, and chemical fertilizers then used to promote the extra growth.

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Microbe Menace

(continued from page six)

ticed that large flocks of birds were following them. Upon investigation, it was discovered that countless insect larvae were already leaving the ground.

On a small scale, experiments with soil fumigation have been carried on since 1948 by R. W. Bailey, County Agent for Richland County, and Mr. J. C. Haley, who is with the U.S. Department of Agriculture. They have had good results with both Dowfume and D-D. Their experiments were conducted on gardens and soils that were to be used for such crops as beans, peas, tomatoes and okra. While application of fumigant is effective at any time before a crop is planted, their results have shown it to be most effective when applied about one month ahead of the crop.

The second way in which the farmer has been combating his underground enemies is through the use of fertilizers containing insecticides. The two insecticides that are most generally used today are chlordane and BHC. These insecticides have both been effective in overcoming the wireworm problem. Chlordane has proven effective against the Southern Corn Rootworm also. The Clemson Experiment Station has run experiments with fertilizers containing chlordane on corn and greatly increased yields have resulted. The experiment station warns, however, that taste contamination or other damage may result from the use of chlordane on other crops. The amount of chlordane that should be mixed with a ton of fertilizer should be adjusted to give one pound of chlordane to the acre of treated land.

Thus by the use of two methods, soil fumigation and insecticide fertilizers the farmer has been able to control the underground pests that have been increasing his costs and reducing his yields.

One, however, should keep in mind that all soil parasites are not detrimental to plants grown in soils abundant in microorganisms. A lot of information has been published regarding the eradication of soil parasites, and it is thus easy to become prejudiced against all soil organisms. In insect control sometimes beneficial organisms are destroyed along with the non-beneficial ones, and this has proved to be a problem to those investigators of new insecticides. If such soil organisms as earthworms, nitrogen-fixing bacteria and beneficial symbiotic bacteria are eradicated along with harmful organisms, new problems in soil management arise. Those workers who are seeking new insecticides are thus endlessly looking for control materials with selective action; that is, chemicals which eliminate undesirable soil organisms but do not damage beneficial organisms.

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Ascochyta --

(continued from page eleven)

also seems correlated with shade and associated high humidity since, in a survey made in September 1949, Ascochyta leaf spots were much more abundant when the plants were large and the ground was well shaded, apparently because of the higher humidity around the central and lower portions of the plant.

Recent experimentation at Clemson College has been concerned with, as mentioned before, the pathogenicity in relation to temperature and humidity to the infection of cotton seedlings. Although the study has not been completed, there are some results worthy of interest concerning "damping-off" of cotton seedlings. In these studies acid-delinted cotton seeds were inoculated with the Ascochyta fungus by soaking them for 5 minutes in water containing mycelial fragments of the fungus which were obtained from fungus colonies grown on nutrient agar. The seeds were germinated in sterile sand to which the proper amount of a balanced fertilizer solution had been added. Uninoculated seeds were germinated under similar conditions. Each test consisted of a planting of 32 seeds in triplicate, a total of 96 seeds, in dishes in which 6 pounds of dry steamed sand had been placed initially. These seeds were grown in cases at temperatures of 18, 21, 24, 27, and 30 degrees Centigrade, a range of 64 to 86 degrees Fahrenheit. In these tests the number of healthy seedlings after 2 weeks of growth for these temperatures were 0, 2, 22, 64, and 92, respectively for the innoculated seeds. The percent of emergence and healthy seedlings for the same length of time was 85, 87, 96, 97, and 98 percent, respectively for the uninoculated seeds. These show that heavy seeedling losses can be expected from 18 to 24 degrees Centigrade. At 18 degrees Centigrade none of the inoculated seed emerged, whereas 85 percent of the uninoculated seeds produced healthy plants. The embryos of the inoculated seeds were completely rotted when examined after 14 days incubation. At 30 degrees Cenitgrade, no seedlings were infected, and germination of both the uninoculated and inoculated seeds was 97 percent.

The first evidence of the infection on emerged seedlings was the appearance of a reddish brown lesion at the ground level. The outer portion of the stem (cortex) below the soil level is invaded, becomes chocolate in color, and sloughs off easily when pulled through the forefinger and thumb. The destruction of the cortex will cause the seedling to fall over, but the cotyledons (seed leaves) may remain normal for several days. Wilting of the cotyledons does not occur until the cortex has become rotted over a considerable area and the fungus has invaded the central portion of the stem (stele). This slow development of wilting is in striking contrast to the rapid wilting of the cotyledons when seedlings are infected by the two pathogens, the anthracnose and Rhizoctonia fungi, which are the most frequent causess of extensive seedling damping-off. These two fungi invade the stele almost as soon as the cortex is well infected.

Experiments were conducted at 24 degrees Centigrade and 18 degrees Centigrade with seeds which had been inoculated with spores only. These spores were obtained from the fruiting bodies of Ascochyta fungus. In the results so far obtained, the seeds inoculated with the spore suspension have produced a greater number of seedlings than the seeds inoculated by the mycelial suspension. However, the observations after a 16-day period indicate that about the same percentage of the seedlings will be killed for both types of inoculation.

Observations made last season in a field of cotton in which the old stalks had been turned under six weeks before planting showed no infection by the Ascochyta fungus, while the part of the field in which the stalks were not plowed under until the time of the planting, the incidence of the disease was severe

(Continued on page thirty-two)

Armour Quiz . . . Test your knowledge!

If you answer these questions correctly you have a high I. Q.—as far as cattle raising and beef packing are concerned.

Questions

1. How much of an average beef steer "on the hoof" is meat?

☐ 45% ☐ 55% ☐ 63%

2. Beef animal dressing percentages vary with age, sex, finish, and other factors. Which of the following is the closest range of dressing percentages of beef animals?

☐ 40-70% ☐ 30-60% ☐ 48-65%

3. The short loin, source of the best steaks, is about what percent of a beef carcass?

☐ 5% ☐ 9% ☐ 14% ☐ 18%

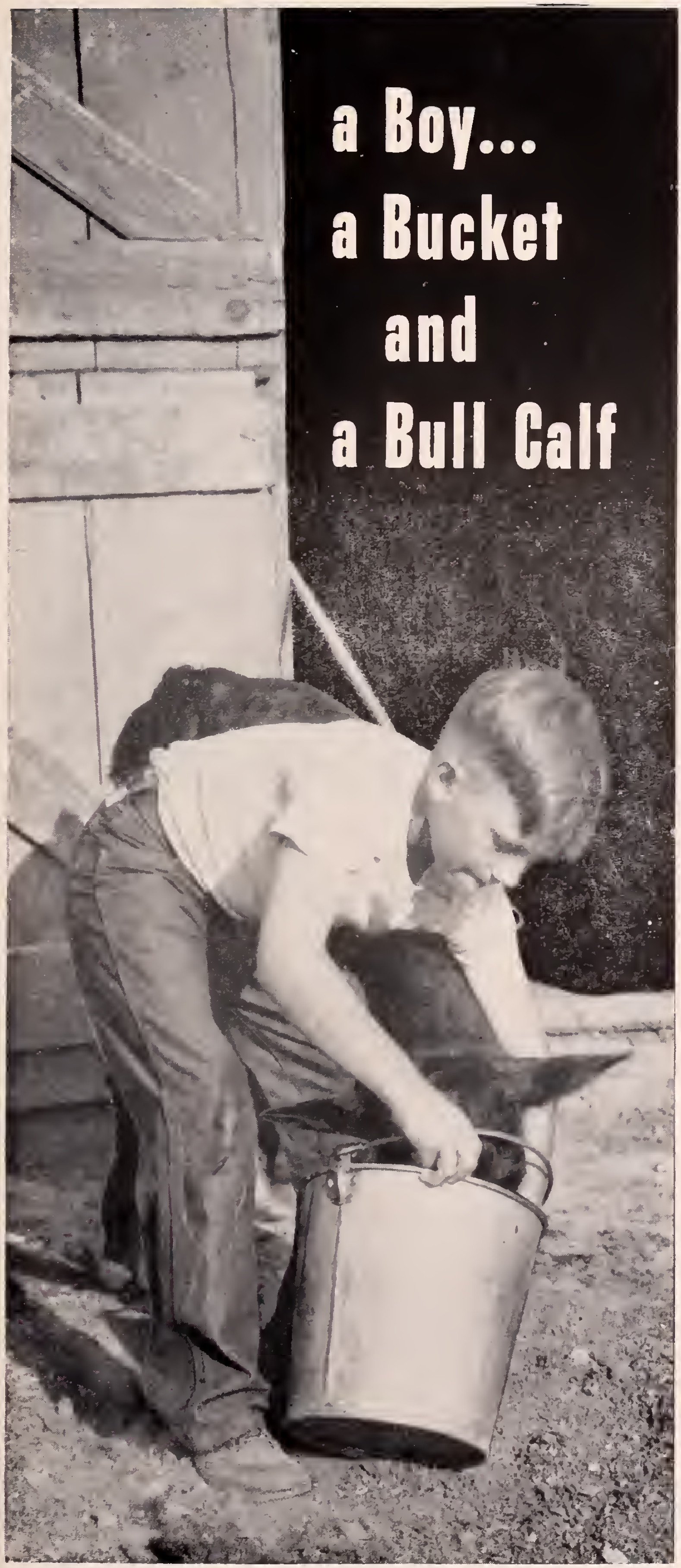
4. The hide from a $200 steer is worth approximately how much? (When sold by the packer).

☐ $15 ☐ $24 ☐ $68

Answers

1. The average beef steer has a dressing percentage of about 55%.
2. The correct answer is 48-65%. Top quality beef steers shrunk out for show, may yield 70%.
3. Only 9% of a beef carcass is short loin.
4. About $15.

ARMOUR AND COMPANY Union Stock Yards • Chicago 9, Illinois



a Boy... a Bucket and a Bull Calf

Substituting a bucket for old bossy, at weaning time, usually sets the stage for a barnyard rodeo. The meekest little calf sees red when he's faced with a pail—bucks and bawls like a wild steer. No wonder farm boys dislike playing foster mother to a stubborn calf. It is one of the few tasks that are just as difficult and disagreeable as they were in grandpa's day.

A mechanical calf weaner may remain a dream of weary farm boys, but modern power machinery has already revolutionized most other farm jobs. This equipment saves much of the muscle work that farming used to require, and steals hours from the clock that can be invested in other projects or spent with the family. It reduces the weather hazard, cuts production costs—helps to make farming a more stable and profitable business.

No wonder so many farm boys are sticking with the land rather than seeking their fortunes in the city. They are discovering first-hand that the farm offers opportunities for profit and a satisfying way of life that few jobs in town can match. Yes, modern John Deere power equipment is doing a lot to keep our ambitious boys and girls on the farm where their leadership can help to realize our dream of a more productive agriculture, a stronger America, and a better world.

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Parity Prices --

(continued from page eight)

basis for the relationships up to date.

The base period 1910-14, however, is still used as a primary medium of measurement. In step two, the indexes are calculated as in the old formula by use of the 1910-14 base period.

After obtaining the "adjusted" price for a specific commodity as directed above, the index of prices paid by farmers for all commodities, including taxes, interest, and wages (as provided in the recent legislation) is calculated for the month for which parity is being sought. In January 1950 this index stood at 249. This multiplied by the "adjusted" price of any commodity gives the "new" parity price for that commodity. The average of the indexes of prices received for the ten years preceding 1950, is calculated to be 202. Therefore, the parity price for cotton as calculated under the new formula would be as follows:

$0.2248 divided by 202 equals
0.1113 multiplied by 249 equals
$0.2771 (parity price)

The changes brought about by the Agricultural Act of 1949 do not end with the changes in the method of calculating parity prices, but extend to the provisions specified for various commodities. Basic commodities are separated from non-basic commodities relative to the provisions for each under the new legislation. There are presently six items on the list of basic commodities. These include cotton, corn, wheat, peanuts, rice and tobacco. For basic commodities, the legislation provides that the parity price until 1954 shall not be less than the price calculated by the old formula. In effect, this means that the parity price which is higher as calculated by the old or new formula will be used until 1954.

For non-basic commodities, the parity price shall not be less than the transitional price. The transitional price is one obtained as a transitional medium from the old system to the new. It is defined as the parity price obtained under the old formula reduced by 5 percent for each calendar year since January 1949. The transitional price will be used for these commodities until it becomes as low as the parity price calculated by the new formula, after which the latter will be in effect so long as it remains equal to or higher than the former.

The parity prices discussed above should not be confused with the support prices for various commodities. Commodity prices may be supported at various percentages of the parity prices. These support prices are likely to fluctuate under current legislation according to both economic and political expediency.

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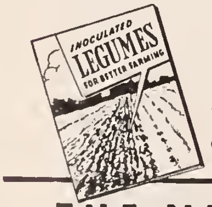

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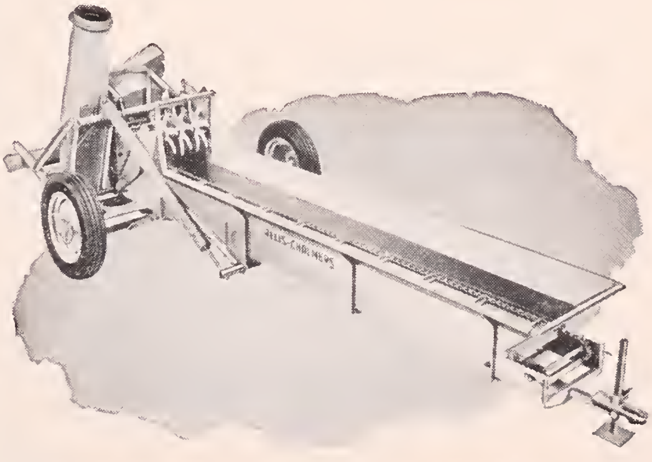

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Roses --

(continued from page seven)

Roses are divided into a number of classes. There are: border roses, climbing roses, cut flower roses, bedding roses and others of minor importance. There are numerous species and varieties, their general culture is about the same except for pruning. Border roses such as the Rugosa rose or Carolina rose require no pruning except cutting out dead or weak branches and cutting off the entire top every five or six years. When pruning Wichuraiana or most other climbing roses, cut out most of the old branches immediately after blooming so that the young wood will be stimulated. Do not cut out the young wood for it is here that next year's blooms will be produced. Cherokee roses should be treated like the border roses. Climbing hybrid tea roses bloom throughout the season and the blooms form on current season's wood. Prune only to remove weak wood and those growths that are in undesirable locations. Cut flower roses generally require severe pruning if they are to produce individual blossoms of high quality. Pruning should take place as soon as danger from freezing is past. Cut out all weak or dead branches and then cut each main branch back to leave four or five eyes. The bedding roses are generally dwarf roses with a mature height of one to two feet. Their only requirements are that they should be fed liberally and pruned moderately but regularly.

From the standpoint of propagation roses may be considered in two groups—those which will reproduce from seed, with only trifling variations, and those which will not come true from seed and must be propagated vegetatively, that is, from a piece of stem with one or more buds or eyes. Most of the rose species are grown from seed but hybrids must be propagated vegetatively. There are a number of vegetative ways of propagation. Some roses produce stems that run under ground throwing up new growth at intervals. This is called "suckering". These underground stems can be dug up and cut into pieces, each having a bud. These pieces can be planted and each rooted piece having a live bud will make a new plant. Budding and grafting are frequently used methods of propagating roses. They involve growing a top of one kind of rose on the root of another kind. There are several methods of budding and grafting each of which has it's own name. Propagation may also be by cuttings of immature wood, called "greenwood" cuttings, or of mature wood, called "hardwood" cuttings. Some home gardners grow their own roses from plants they have seen and admired in their neighbor's garden.

This writer hopes that the reader realizes that because this article is of a general nature, there is much rather important information concerning roses that has been left out. There is no list of species or varieties of the classes named. This material was intentionally left out because climatic conditions greatly influence the adaptibility of a variety to a particular region of the country. It is suggested that persons who intend to take up growing roses consult local growers, nurserymen, and their state Experiment Station or Extension Service for detailed information.

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DIRT FROM THE FURROWS

By "TOOK" GANDY

When I was asked to write this article, due to the absence of Ray (I'm finally going to graduate) Alexander, I really had no idea how to begin. Then after a week or so with my eyes and ears to the private lives of the so called "Plow Boys", I was convinced that maybe I should write a book instead of a few paragraphs. You know the troops **will** talk about their little escapades. This is where I fit into the story. I am to compile all of the prankish adventures of the boys in Long Hall.

From all that I have heard, Billy Smith is still "King Lover" among the "Local Queens." They tell me he has a reserved seat at the coming Calhoun High School Junior-Senior Banquet. It must be nice to know so many cute girls! How do you do it, Billy?

Bert Holland, Bill Deas, Charlie O'Neal, and Sambo Currie have set up housekeeping out on the Greenville highway since the beginning of this semester. The "Housemother" failed to arrive, but their faithful friends Haige and Haige never fail to get there every night before sundown. Just one other thing boys, we are still having classes you know.

Buddy (I don't cull nothing) Lemon hasn't been able to get around so well for the past few weeks due to a dislocated knee. It seems that there was a party going on over at the "Fat Gals" house in Anderson and Buddy was dancing with the "Beast". During the course of the dance, there was a miss step by one of them and Buddy ended up on the Bottom. Sorry about that knee, Buddy.

Harold Furse has really been keeping the roads from Clemson to Pendleton hot since mid-winters. He met a cute little lassie (M. S.) and just can't seem to get her out of his system. Harold thinks he's found something new and I just can't bear to tell him that it is a beaten path.
all the girls in Anderson very well

Johnny Hardwick seems to have all the girls in Anderson very well satisfied with his idle lingo. But he really has been looking a little under-fed lately—could it be all talk that's taking the weight off poor Johnny?

Well, the School of Agriculture has finally got a representative on the Senior Council and a good one at that. Bill, keep your eyes on your "cornbread loving" friends and don't forget 'em.

The "Lord" has really been worrying about losing some of his Agronomy staff next fall due to one or two planning on working on their Doctors' degree. If he doesn't watch out, he is just as liable to lose his secretary since "Dirt" Steedly has moved in.

W. D. "Country" Evans swears that he gave "Fruity" the shaft, but I am inclined to believe just the opposite. How about it, "Country?"

Tom Wallace has finally left the dear ole' campus and set a good time record but Ray Alexander is trying hard to break it.

"Nose" Gilliam and Bobby Brown have been looking rather undernourished since they have finished both their meats courses.

Jack (I love to knock out windows) Early hasn't been on any more of his "Calvert Cadis escapades" since the last little escapade cost him nine windows and a frame.

Moose (I still run the barn) McLin has finally met his master,—and believe it or not, it IS a woman. He has his orders to be in Ridgeland not later than four o'clock every Saturday afternoon, and believe you me, he is going if he has to walk. Ain't cha' "Moosie?"

"Boots" Altman sho' got the shaft at Coker. I'll get the details and let you know next issue. "Boots", you have had it.!

Of course there are quite a few more on the campus that are in the same fix. If John Esterling spent as much time on his books as he did on the highway between Clemson and Florence, he would be a high honor student. Don't laugh Ralph Jackson, you haven't missed a weekend at Winthrop College this year.

Roland Hewitt, leader of three squads and one of William (I have three left feet) Derieux's troopers, is really a lover. If you don't believe it, just ask him. It never fails to snow no matter where Roland's apt to go. Or at least that's his side of the story. You know Derieux is majoring in Poultry. Quite fitting isn't it?

During the last dance weekend a few boys and I were riding around after the dance. We noticed a car parked down by the stadium and thought maybe someone was having car trouble. So we pulled up along side and it happened to be Billy Patton. I asked him if he had engine trouble. He said, "No." So I thought maybe it was the carburetor, but he said "No." Finally I said, "Is your tire down?" Billy replied, "Nope, I didn't have to."

My space has run out on me so like the farmer told the potato— "I will plant you now but I will dig you later."

Bye now — "Took"

P.S.: You plow boys better be good, or you'll sho read about it in the next issue of this Ag rag.

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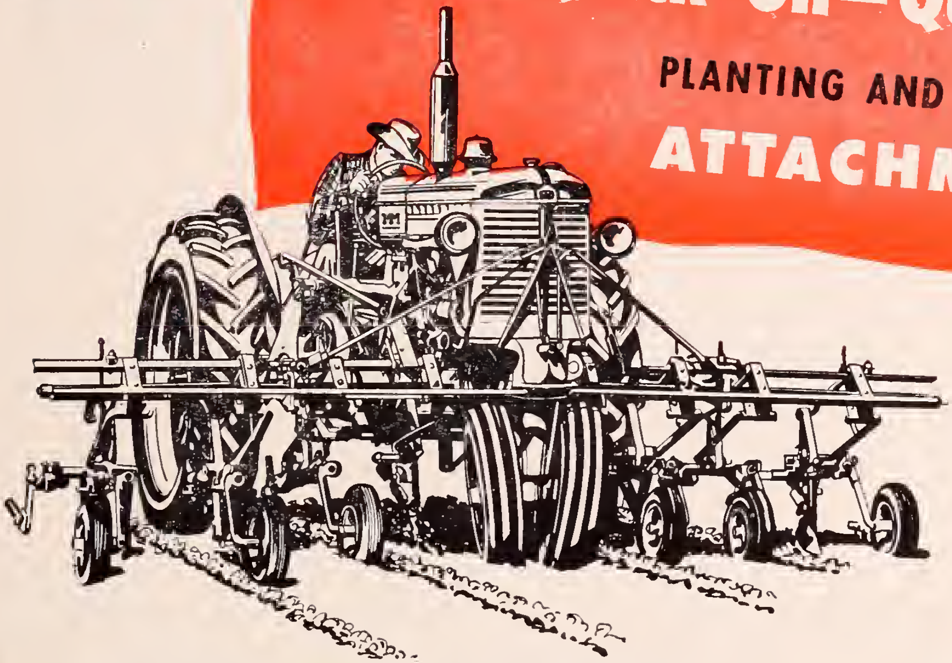

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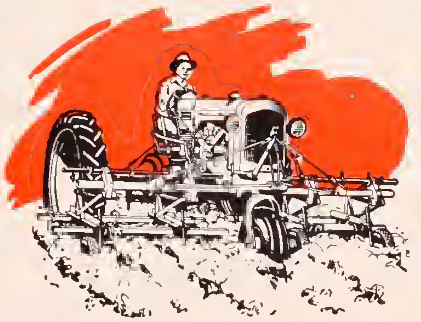

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Ascochyta --

(continued from page twenty-four)

and many of the plants were killed. Following this trend of thought and considering observations made by Elliott, one could conclude that early turning of stalks could be a possible means for control of the disease when cotton is to be followed by cotton. It also appears that crop rotation would be another means of control. This is supported by the observations of Elliott who found that the fungus is able to overwinter on dead stalks in the field and is able to infect cotton throughout the following season.

THREE-MINUTE AGS

"Hello, Madam Mimi, speaking."

No, no, operator, I said 'Give me the storehouse.'"

A tobacco farmer was asked why he refused to allow his daughter to enroll at college.

"Wal," he replied, "I started gittin' mad when they told her to go to the Registrar's Office to matriculate, but by cracky, I shore put my foot down when they said she had to use the same curriculum as the men!"

The quiet little freshman coed from the country was on her first college date, and thrilled beyond words. She didn't want to appear countryfied. She had put on her prettiest dress, gotten a sophisticated hair-do, and was all prepared to talk understandingly about music, art or politics.

Her hero took her to a movie, and then to the favorite college cafe.

"Two beers," he told the waiter.

She, not to be outdone, murmured: "The same for me."

"Did you hear what happened when Mary backed into the airplane propellor?"

"No, what?"

"Disaster."

One of the guests turned to a man by his side to criticize the singing of the woman soloist.

"What a terrible voice! Do you know who she is?"

"Yes," was the answer, "She's my wife."

"Oh, I beg your pardon. Of course it isn't her voice really. It's the stuff they make her sing. I wonder who wrote that awful song?"

"I did," was the answer.

Once there was a traveling salesman. He was new to the job—but he had heard a lot of jokes about farmers' daughters. So when it got late, instead of stopping in town, he went to the nearest farmhouse The people were very hospitable; they invited him to spend the night. They had a daughter! And as usual there were only two bedrooms, one for the old couple; and the salesman was told to sleep in the daughter's room.

About nine o'clock they all went to bed for a good night's rest The next morning the farmer got up, his wife got up, the salesman got up, and the daughter got home from college.

QUESTIONS

A If you locate me, you'll see this modern age,
Add a furry friend who lurks upon the back page.

B Where the dogwood grows you'll find me too,
Believe me, solver, I'm pale in hue.

C What's the smoke that satisfies? Simple as A B C,
Look at the frame's initial lines; its slogan is in 1, 8, 3.

ANSWERS WILL APPEAR IN THE NEXT ISSUE OF YOUR MAGAZINE

RULES FOR CHESTERFIELD HUMOR MAGAZINE CONTEST

1. Identify the 3 subjects in back cover ad. All clues are in ad.
2. Submit answers on Chesterfield wrapper or reasonable facsimile to this publication office.
3. First ten correct answers from different students win a carton of Chesterfield Cigarettes each.
4. Enter as many as you like, but one Chesterfield wrapper or facsimile must accompany each entry.
5. Contest closes midnight, one week after this issue's publication date. New contest next issue.
6. Answers and names of winners will appear in the next issue.
7. All answers become the property of Chesterfield.
8. Decision of judges will be final.

LAST MONTH'S ANSWERS & WINNERS

A FRANK CAPRA. Honest or without guile is "frank." A beautiful isle, Capri, with a change of a vowel, gives Capra.

B CROSBY. Crops of the birds are "craws;" and insect that hums is "bee." Run them together and you have CRAWSBEE (CROSBY).

C SEA, SEE, C. The "Sea" of Green Sea, the "See" in the phrase "See Bing in his latest Picture," and the C. of "S. C."

WINNERS...

A. C. Livingston, Chippy Flake, Alan Chandler, J. W. Rogers, J. M. Smoak, W. J. Coker, W. C. Moorman, J. W. Lambert, J. G. Williamson, Charles Atkinson.

Hurry! Boys

Read the directions of the contest and get your entry down to Harry Dukes in Room 3-B-29 quick as possible. . . . The first ten get a free carton of CHESTERFIELDS . . . Ed.

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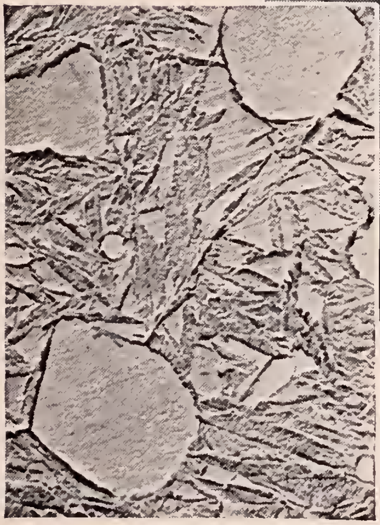

Here's what an IH researcher sees when he looks at a sample of steel under the electron microscope. This is a picture of the internal structure of heat-treated steel.

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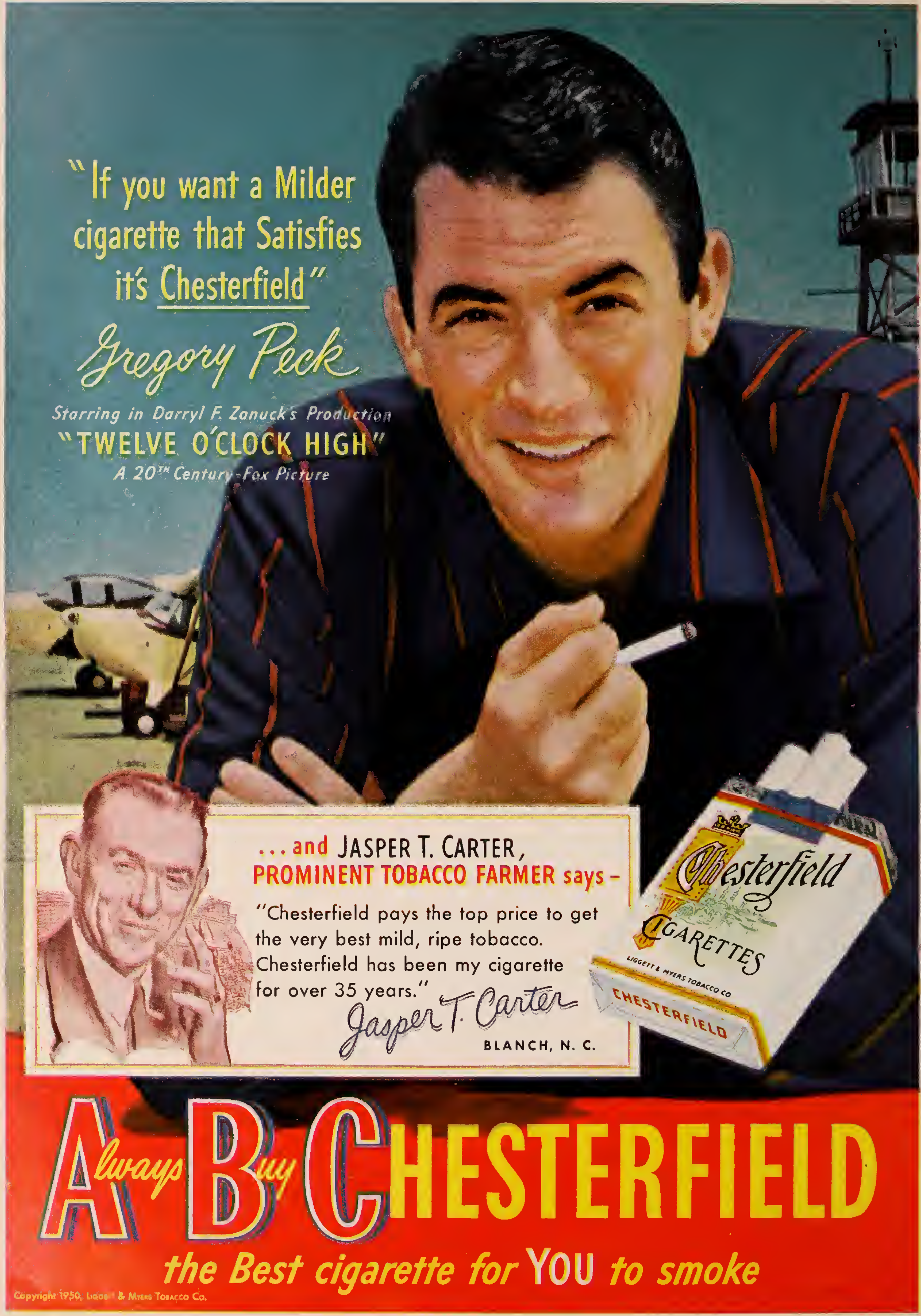

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Jasper T. Carter
BLANCH, N. C.

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For CHESTERFIELD CONTEST See Page 32

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The Clemson A&M College ● Clemson, S. C. ● May 1950

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The Agrarian

VOLUME 9 THE CLEMSON AGRICULTURAL COLLEGE NUMBER 4

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Grains of Opinion - -

Federal Aid or More Taxes

By ALAN B. SIBLEY

South Carolina still holds to the idea of maintaining States Rights; that is, little government interference in state affairs. Most of us are opposed to Federal Aid, for we feel that such aid only magnifies socialism.

This problem brings certain responsibilities with it. For instance, if we do not accept, Federal Aid to education, then is it not the **obligation** of the state to offer its school children the same opportunities for education that the increased funds from Federal Aid would provide?

Most of us feel, even though we may not have realized the above obligation, that we are also ogligated to future generations to keep the socialism, which Federal Aid might instigate, out of our state. We should be satisfied only if both ogligations are fulfilled.

We have two alternatives. First, if the state does not accept Federal Aid, then the state must raise in some way the additional funds that Federal Aid would offer. This may call for an increased efficiency in state administration concerning allocations of funds, a magnification of the present tax system, or the inauguration of a general sales tax. As we realize the squabble over new tax reforms has been going on for some time.

The other alternative would be to accept Federal Aid, but the federal government would only give us the funds and not interfere with our handling of them. Our social standards would be raised without the threat of socialism.

We should decide in the near future which of the two alternatives to advocate, thereby, fulfilling all obligations.

THE COVER

This month's cover shows a montage of the buildings, in the School of Agriculture. Not shown is the Ag. Engineering Building which is now under construction. Cover designed by Staff Photographer Bennett B. Smith.

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FARM & SEED COMPANY**
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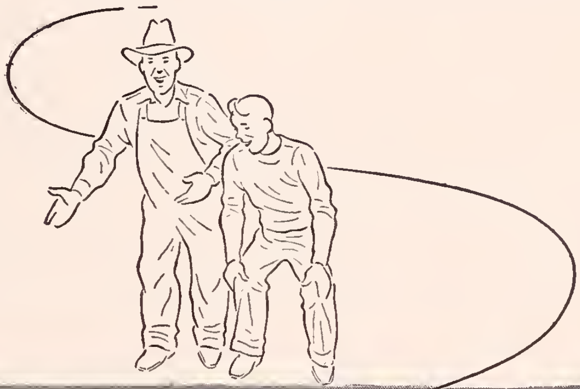
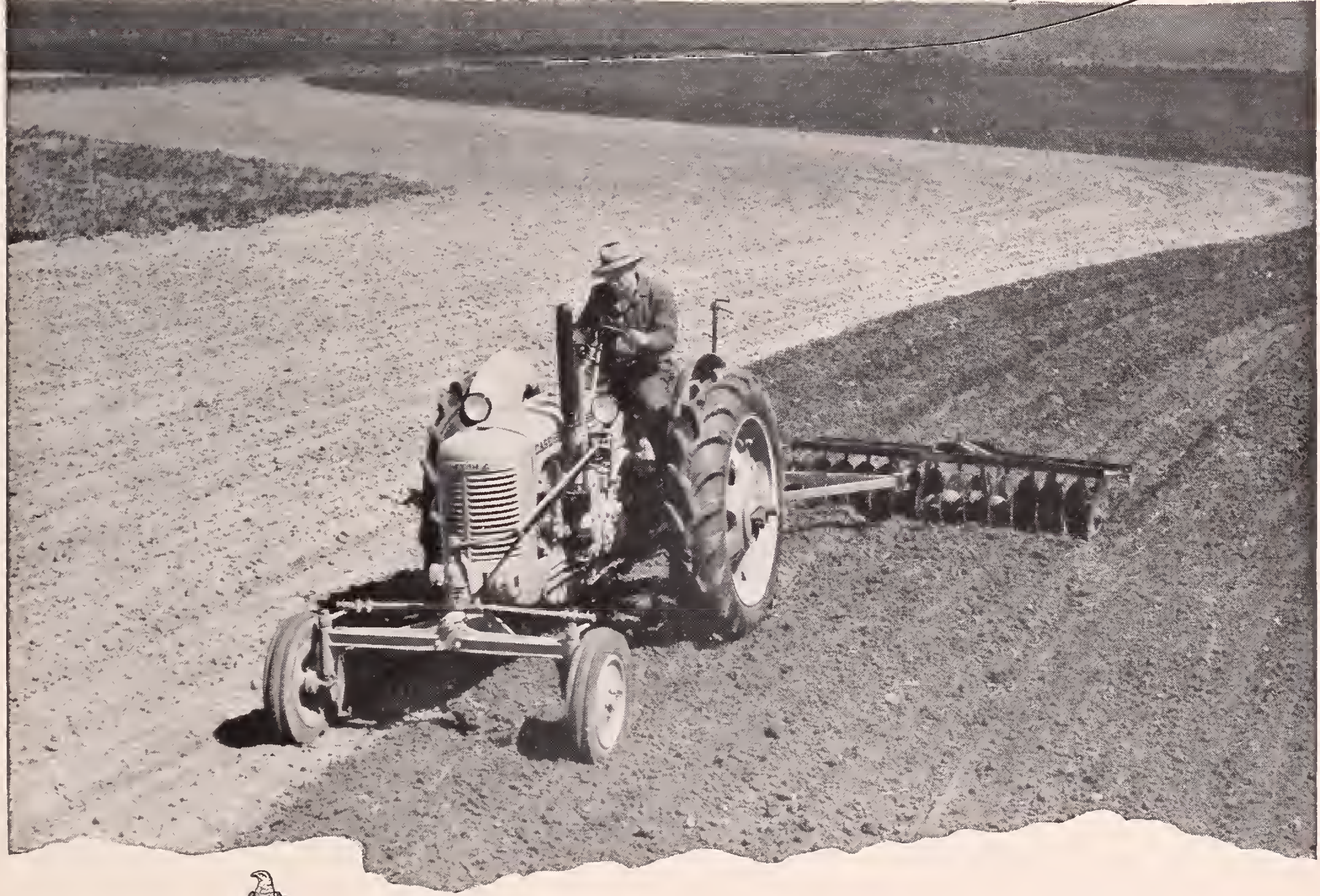
ANOTHER CHALLENGE to Farming in the 1950's

● How many farmers realize that conservation practices not only save soil but also increase yields and reduce crop production costs? A majority of farm paper editors . . . regional and national . . . answering this question said that nearly 100 percent realize it but, for various reasons, most *do not yet practice it.*

Here is your challenge as farm leaders of the dawning decade: To transform this apathetic acceptance of soil conservation—wherever you find it—into dynamic guidance of prevailing farm practice. It calls for the fire of youth, the energy of persistent purpose, to overcome habits and wasteful ways.

In this service to agriculture and to America, the farm machinery industry is your ally. For example, Case has consistently promoted the principle that conservation is not something to be done for the farmer but rather to be his own way of farming with his own farm power and implements, at his own discretion and responsibility.

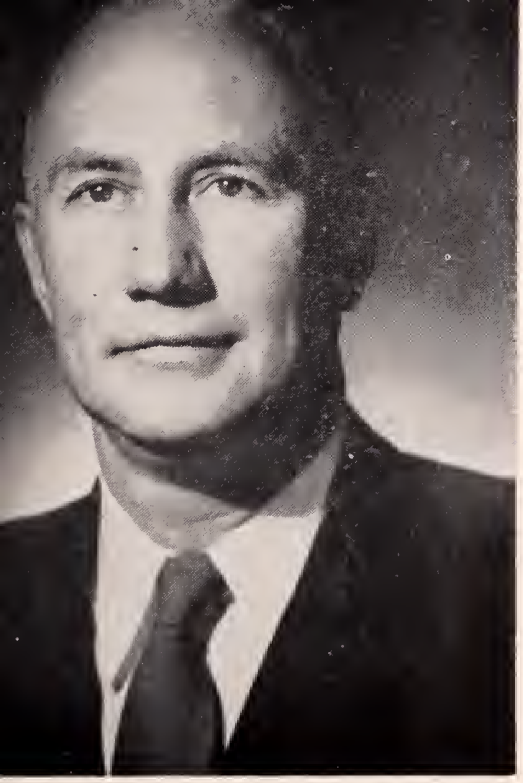




CASE

With its 15-foot working width, the Case wide-cut disk harrow gives great capacity with tractors of medium size, such as the Case full 2-plow "SC" shown here with adjustable front axle. Outer sections of this harrow swing on inclined pivots. They can be carried above the middle gangs to go through 12-foot gates, or to gain extra penetration when used as 10½-foot harrow. Angling and straightening "on the go"—by hydraulic control or by rope control powered by its own gangs—makes it easy to cross grassed waterways without cutting and without loss of time. J. I. Case Co., Racine, Wis.

To the Memory of those
staunch founders whose
courage and wisdom
built Clemson,
to the faculty members
who brought fame and glory
to her name
this issue
is gratefully dedicated . . .



FARMING TRENDS in SOUTH CAROLINA

By J. STROM THURMOND
Governor of South Carolina

The young farmer who makes his start on the land in 1950 will find that the agricultural situation in South Carolina has changed greatly since his father's time. A sharp decrease in farm population, and the trend to mechanization, electrification, and vastly different crop methods, are some of the factors which have served to change and improve the agricultural outlook in our state.

In 1920, there were 1,072,479 people living on farms in South Carolina; by 1945, this number had decreased to 682,663. Instead of making up two-thirds of our population as 1920, farm people now make up only one-third of it.

In spite of this sharp decrease, the production of crops, livestock, and livestock products have reached and maintained new high levels, as our farmers take advantage of labor-saving devices and new methods of scientific farming.

The rapid mechanization of our farms is shown clearly in the increased use of tractors, as compared to the decline in the use of horses and mules. In 1920, there were 1,304 tractors in use in South Carolina. In 1945 there were 12,477 tractors in use, and farm experts say the 1950 census will probably show that the number has grown to nearly 40,000. On the other hand, the number of horses and mules declined from 297,741 in 1920 to 191,000 in 1945, and will probably go below 150,000 in 1950.

Use of electricity on our farms is also increasing rapidly, and today, over three-fourths of South Carolina farms are electrified. The coming of electricity to the farm means not only a more efficient way of doing the work, but a happier and more comfortable existence for the farm family.

Along with the new emphasis on modern farming has come a corresponding gain in the production of all major crops. The average yield of lint cotton per acre has more than doubled since 1920, and the percentage of cotton 15/16-inch or better has increased from 18½ percent to 98 percent during that time. We have reduced the acreage devoted to cotton by half, while at the same time increasing production. (This fact did not hold true in 1949, however, because of the heavy inroads of the boll weevil and other factors, which cost our cotton farmers approximately $60,000,000.)

Similar increases in average yields have been made in production of tobacco, corn, oats, wheat, and in new income-producing crops like peanuts and soybeans. The latter will soon be a million-dollar crop because of a new shatterproof bean produced by Clemson College which can be harvested successfully. In recent years, South Carolina has taken the lead among states in the shipment of fresh peaches. One South Carolina county ships more fresh peaches than the entire State of Georgia.

Perhaps the most significant development in farming in recent years, and the most encouraging, is that of livestock production. In this activity many experts now see South Carolina's greatest hope for a more prosperous agriculture. The development of year-round pasturing and the increased use of pure-bred stock through artificial insemination make the outlook for livestock production a very hopeful one in this State. It is my prediction that South Carolina will one day become one of the greatest livestock-producing states. Some of the factors which make this possible are: we can graze cattle 12 months out of the year; we can raise three crops a year; our good seasons enable us to support an animal on only one acre, whereas in certain areas of the West, 10 to 25 acres are required to the head; and our mild climate makes it uneccessary to heat cattle barns during the winter months.

(continued on page 32)

IN THE BEGINNING . . .

THE STORY OF THE BIRTH OF CLEMSON COLLEGE

"In the beginning God created the heavens and the earth . . . "

— GENESIS 1: 1.

It is from the earth that is mentioned in the first chapter of the Bible that the farmer seeks to earn his living. In accomplishing this aim the farmer causes the earth to blossom forth; he causes living things to grow. It is for the purpose of helping the farmer to reach his objective of obtaining his livelihood from the soil that Clemson College was originated.

The germ of the idea of establishing colleges to help the farmer better understand agriculture and thus better equip him to obtain and maintain high crop yields began in the fertile minds of a few prominent men in the mid-nineteenth century. As a result of their persistent and determined work toward this goal, a bill was introduced and passed thru the United States Congress in 1857. This bill, known as the Morrill Act, was vetoed by President James Buchanan. It was reintroduced, passed by Congress and signed by President Abraham Lincoln on July 2, 1862. Following the Civil War, South Carolina received under this Act a grant of 180,000 acres. As far as can be traced, this land was sold in New York by the legislature of South Carolina, controlled at that time by negroes and carpetbaggers, for about 17½ cents per acre. It is interesting to note that this grant, due to the lack of public lands in South Carolina, was located in Texas in the same general area as the grants which the State of Texas received and on which oil was later discovered.

The South Carolina legislature did, however, set up at Orangeburg Claflin University, a negro institution offering courses in agriculture. At that time there was no white institution teaching agriculture on a college level in South Carolina. On October 5, 1880, the South Carolina College of Agriculture and Mechanics opened its doors in Columbia, S. C. Dr. John M. McBryde received an appointment as professor of agriculture and horticulture of that college in 1882. In October, 1888, the agriculture and mechanical curriculum was added to the courses offered at South Carolina University.

By HARRY LIGHTSEY
Agronomy '52

It was in the early 1880's when the rise of Ben Tillman marked the revolt of the farmers against the South Carolina aristocrats that were ruling, that the movement was begun to separate the mechanical and agricultural college from the classical atmosphere of South Carolina University. Capt. Ben Tillman played an important part in this movement which he initiated in a speech at a meeting in Bennettsville in 1885 of the South Carolina Agricultural Society. The work of Mr. Tillman came to the attention of Mr. Thomas G. Clemson, former Superintendent of Agriculture of the United States preceding the Civil War, and at that time engaged in farming in upper South Carolina. Mr. Clemson, who had been active in the early movement for land grant colleges, was greatly interested in the prospect of establishing an agricultural college for South Carolina. Mr. Clemson was interested in urging the Pendleton Farmers Society to form a committee to investigate the possibility of South Carolina's having a separate agricultural college. He served on this committee along with Mr. R. W. Simpson and Mr. W. A. Hayne.

Thomas G. Clemson was born on July 1, 1807, in Philadelphia. In 1823, when he was merely sixteen years old, Thomas Clemson journeyed through England to France, where he entered and graduated from the "School of Mines." He returned to this country and located in Washington as a mining engineer. It was in Washington that Clemson met and married Anna Marie Calhoun, eldest daughter of John C. Calhoun, then Senator from South Carolina. Mr. Clemson served in the Agriculture Department of the United States until the Civil War. At the beginning of the War, Mr. Clemson, because of his Southern sympathies, resigned his post in Washington and moved south. After the War, Mr. Clemson remained in South Carolina and engaged in farming. Following the death of Mrs. John C. Calhoun, who had inherited her husband's farm, the Fort Hill Plantation of John C. Calhoun passed into the hands of Mrs. Clemson and Mrs. Guideon Lee. Following the death of Mrs. Lee, the property became legally involved and was sold at a public sale. Mr. Clemson bid this property in for his wife and bought it for approximately $15,000.00. When Mrs. Clemson died, she left this property to her husband. Upon his death on April 6, 1885, Thomas G. Clemson left this property of 1814 acres, and $58,539.00 in securities to the State of South Carolina for the establishment of an agricultural college.

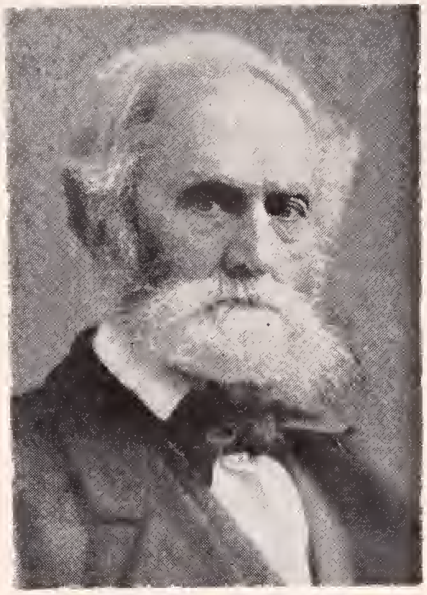
In 1889 the General Asembly of South Carolina voted to accept the bequest of Thomas G. Clemson, and after considerable delay, the bill was signed by Governor Richardson. It was in 1890, following the election of Captain Ben Tillman, however, that the legislature laid the foundation for the establishment of the college. In his will, Mr. Clemson had set up the college board of trustees, consisting of seven life members and six members elected by the General Assembly of South Carolina. The first meeting of the board of trustees of Clemson College was held in 1891, and Mr. H. A. Strode was elected first President of Clemson College. The first session of Clemson College began on the 6th day of July, 1893, under the Department of Agriculture. In 1894, courses were offered in agriculture, botany, dairy and horticulture. The first class was graduated from Clemson in 1895. Commencement exercises were held December 13-16, in which 37 men received diplomas. Of this number, fifteen graduated from the school of agriculture.

BEN R. TILLMAN

Following this first graduation, there was a general decline of students enrolling and graduating in agriculture until a low of five men were graduated in agriculture in 1905. Recognizing the potential threat of this decline in students, the South Carolina Legislature passed a bill in 1903 allowing each county as many agricultural scholarships to Clemson College as it had representatives in the legislature. These scholarships increased the number of agricultural students enrolled in Clemson greatly, and in 1908, sixty men from the school of agriculture received diplomas. The Legislature ceased granting these scholarships in the early 1930's.

In its early years, the school of agriculture, due to limited funds, was greatly handicapped in obtaining a full staff of professors. Following the transfer of the experiment station from South Carolina University to Clemson College, professors were forced to double in work consisting of teaching for the college and research for the experiment station. Because the experiment station was receiving funds from the government, however, a restriction to the effect that experiment station men could not devote time to teaching but must work only on research, was soon enforced; and the experiment station and the college were forced to develop separate staffs. The additional income that the college received from the agricultural scholarships that the State Legislature had granted enabled the college to hire more professors and install more courses. The greatest increase in the general development of the faculty of the school of agriculture of Clemson College, however, took place about 1915, when the staffs of the experiment station and the college were partly recombined. Preceding this, the two bodies had been re-combined administratively.

Since that time, the school of agriculture of Clemson College has developed rapidly, until today it has become one of the foremost agricultural schools in the country. Consisting of a faculty of 51 professors and assistant professors and controlling approximately 30,000 acres of land, the agricultural department now offers nine different major courses in agriculture and one course in vocational agricultural education under the school of education. Twenty-six hundred and fifteen men have graduated in agriculture from Clemson College.


THOMAS G. CLEMSON

Many of these Clemson graduates have now become prominent and outstanding men in agriculture. Clemson College can number among its agricultural graduates such men as R. F. Poole, President of Clemson College; W. B. Camp, multimillionaire farmer and rancher in California; W. P. Gee, head of Department of Rural School Science at the University of Virginia; J. Funchess, Dean and Director of the School of Agriculture at Auburn; T. Roy Reed, Director of personnel of the U.S. Department of Agriculture; and H. W. Barre, former Head of the Cotton Division of the United State Department of Agriculture.

Thus, by educating such outstanding men as mentioned above and by developing a highly trained and highly efficient staff to better educate and inform the future farmers of South Carolina, and by constantly seeking to develop better methods for high production of agricultural products, Clemson College has, and at present is rendering a great and important service to the State of South Carolina and to the country.

THE LANDS OF CLEMSON

The average student at Clemson and the citizens of this state do not know the acreage of land owned by the college or how these acres were obtained by this institution. This article will endeavor to explain how all of this property was obtained.

In 1889, the General Assembly of South Carolina accepted the bequest of Thomas Green Clemson, which set aside the bulk of the Clemson estate for the founding of a scientific and technical college. It was the desire of Mr. Clemson to give the state of South Carolina enough land to establish a much needed agricultural school. In this will Mr. Clemson left 814 acres of land for the purpose of setting up an agricultural school. This land was so willed that it could not be used for any other purpose. The Board of Trustees in 1894, acting under the authority of the legislature, purchased from the granddaughter of Mr. Clemson the Floride Lee tract of land which consisted of 288 acres. The Board of Trustees have a fee simple title to this Lee tract and in this way the college has been able to obtain the new Clemson Housing Project which includes the eight story hotel building. At various times from 1910 to the present date the college has purchased several tracts of land adjoining other college property, these tracts total 546 acres, so at the present date there is a total of 1,648 acres of land belonging to Clemson College.

From 1893, the year the college was formally opened, until 1912, the farms at Clemson were run with the help of hired labor and at one time convict labor, but in 1912, it was decided that a boy work course should be added. The young men, agricultural students, enlisted in this course were divided into two groups so that one group studied while the other worked on the various college farms. Each group shifted at the end of one week so the students received both the practical and theoretical views of agriculture. This method did not prove satisfactory and was discontinued in 1913.

By WILLIAM H. CRAVEN, JR.
Agronomy '50

Prior to 1920, the farm land at Clemson was divided into two parts. The South Carolina Experiment Station operated 150 to 175 acres located just off the campus. The remaining 400 acres of cleared land was operated by the college by a direct appropriation. That portion of land under the supervision of the experiment station was further divided into two parts, known as the Agronomy Experiment Station and the Horticultural Experiment Station.

The portion of land under the supervision of the college was used to produce feeds for livestock, fruits and vegetables for the student body, and cotton as the money crop. At various times this land was under the supervision of the different department heads in the School of Agriculture.

In 1920, a farms department was added to the South Carolina Experiment Station and all of the college lands at Clemson, except the campus proper, were placed under the supervision of the experiment station. The original college farm land was reassigned at this time to the dairy, the animal husbandry, and to the farms departments. The original assignment of land to the agronomy and horticulture departments were kept by these departments.

In 1924, at the request of the animal husbandry and dairy departments, land previously assigned to these departments was assigned to the farms department. In this way the farms department has produced and sold to the various departments of the experiment station such things as hay, corn, silage, and small grains.

In 1940 the federal government leased to the college 30,000 acres of land adjoining the college property. This 30,000 acres of land was obtained by the government from private individuals who were not making a living from their property. This land being classified by the government as sub-marginal, explains why the U.S.A. bought it. After the deeds had been signed by both parties, the former owners were moved off to new areas where they could obtain a better livelihood. Due to the conditions of this land most of it is not being farmed now. At the present time, some of it is being cleared of stumps and trees in an effort to make it productive. This land surrounds the college property on three sides, east, west, and south. The government has leased this land for a period of 99 years with no interest or rent to be paid by the college.

What will happen to the farm lands of Clemson when the Hartwell dam is completed? This is a much discussed question at Clemson. Some say the students will be going to class in boats, but the different departments are searching in an effort to find upland areas which will not be affected by this dam. The departments must do this so that they may continue to provide the much needed information to the farmers of this state. At the present time the farms department is in the process of clearing a 100 acre field which will not be affected by the dam. It is hoped that other fields may be cleared and in a high state of production by the time the Hartwell dam is completed.

Story of The S. C. Experiment Station

DR. H. P. COOPER
Director, S. C. Experiment Station

Although the South Carolina Experiment Station was established only sixty-two years ago, investigation of agricultural problems and efforts toward scientific farming have been carried on in South Carolina since the Lord Proprietors sent an expidiiton to settle on the Ashley River in 1669. According to Carrier in his book, **The Beginning of Agriculture in America,** "The establishing of a testing garden by the Lord expedition to settle on the Ashley South Carolina in 1669-70 appears to be the first agricultural experimental farm ever established in America for the purpose of improving agriculture."

In 1875 the Agricultural Society of South Carolina was formed with the purpose of "promoting and improving agricultural work and other rural concerns." Although the Society was not very active in experimental work for the first 10 years, it is clear that their interests were along those lines and only the force of circumstances prevented their being put into full effect. However, the Society was able to assist materially in the establishment of two branches of the experiment Station.

It has been shown that Thomas G. Clemson, founder of Clemson College, was very instrumental in the founding of the Experiment Station through his work for bills which established the Land Grant Colleges and the Department of Agriculture

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By W. J. Jenkins
Horticulture '51

The S. C. Experiment Station had its beginning when the General Assembly passed an act in December, 1886, entitled "An Act to Establish the South Carolina Agricultural Farms and Stations". The act provided $10,000 for two experimental farms, one of which was established at Spartanburg and the other at Darlington.

Three months later (March 2, 1887), Congress passed the Hatch Act which resulted in the establishment of our nation-wide system of state experiment stations, which is undoubtedly the greatest system for agricultural research in the world. The Hatch Act provided each state with $15,000 a year for the erection of buildings and other expenses in connection with the establishment of the agricultural experiment stations. The University of South Carolina was designated by the General Assembly to administer this fund.

The Act providing for the establishment of the Clemson Agricultural College, passed in December, 1889, included the provision that the Hatch Act fund be transferred to Clemson and an agricultural experiment station established in connection with the college. Accordingly, after having been under the direction of the University for nearly three years, the experiment station was moved to Fort Hill.

In its early years, the S. C. Experiment Station depended almost entirely upon funds furnished by the federal government for its operation. It was not until the boll-weevil began to threaten cotton production that our General Assembly began to lend financial support to the work. An appropriation of $25,000 was made in 1920 and increased to $50,000 in 1921. Since 1921, the state appropriations have fluctuated with varying economic and other conditions, and with demands for new types of work, new branch stations, etc. Support by the federal government has been increased considerably through the approval by congress of three additional funds, the Adams, Purnell, and Bankhead-Jones funds. These funds along with the Hatch fund still provide somewhat less than one-half of the support received by the Station. At present, the total expenditures of the Experiment Station and its branches amounts to a little over a million dollars annually.

The growth and progress of the Experiment Station has been dependent largely upon the officers and men connected with it. It is significant to recall at least a few of these men who contributed heavily to the

DR. H. W. BARRE, Former Director, S. C. Experiment Station

(continued on page 30)

THE DEPARTMENTS . . .

Their History and Accomplishments

Ag Economics

By CALVIN C. TAYLOR

Courses pertaining to Agricultural Economics and Rural Sociology have been taught at Clemson since as far back as 1903. Some of these courses were taught in the History Department and others in the Department of Agronomy. The Aricultural Economics Department was officially organized as such in 1926 with Professor W. C. Jensen as acting head. Professor Jensen continued in this capacity until June 1933, at which time the name of the department was changed to Agricultural Economics and Rural Sociology and Dr. G. H. Aull was placed in charge. Dr. Aull has served as Head of the reorganized department since that time except for brief periods of official leave for various temporary assignments. Under his direction, the objective of offering students a curriculum by which they might be trained for general or specialized service in the various branches of Agricultural Economics and Rural Sociology has been pursued with renewed and increasing vigor.

Do you recognize any of these? Shown above is a picture, taken about twenty years ago, of the members of the Ag. Faculty as they appeared then. From left to right the members are: First Row; Dr George M. Armstrong, W. B. Aull (deceased), Dr. F. H. H. Calhoun, J. P. LaMaster, W. G. Crandall, and R. A. McGinty. Second Row; Dr. Flood Andrews, Dr. William Mills (deceased), Frank Smith, C. L. Morgan, Dr. G. H. Collings, L. V. Starkey, and B. E. Goodale. Top Row; M. A. Rice, Franklin Sherman (deceased), D. B. Rosenkrans, Thomas L. Ayers, R. R. Ritchie, L. W. Shelley, and Dr. I. W. Duggan (Now Government Farm Credit Administrator.)

The first class with an Agricultural Economics Major was graduated from Clemson in 1930. There were six men having such majors in this group. Since then, approximately 150 men have received degrees with a major in this department. These men are now engaged in such fields as business, teaching and research. Governmental agencies, farming and farm management, Extension Service, and various others.

At present, the faculty of the Agricultural Economics and Rural Sociology Department consists of seven men. Of these, five hold Ph.D. degrees. The other two have M.S. degrees. These men have had broad background of training and experience. Among the universities represented are Wisconsin, Minnesota, Kentucky, and Berlin. Other colleges represented are Clemson, Colorado, Montana and Iowa. Other colleges include Berea, Berry and Tokyo.

In addition to teaching, the Department of Agricultural Economics and Rural Sociology is also responsible for research in its field. A broad program of research is administered by this department under which many significant research projects have been and are being carried out. In the past 25 years a total of 67 bulletins and 14 circulars have been written and published reporting the results of research by staff members. There are at present some 25 research problems under consideration or study. These include studies in the fields of Farm Organization and Management, Land Economics, Rural Sociology, and Marketing. The department works in close cooperation with other departments at Clemson as well as with other experiment stations, research organizations, and governmental agencies. An Agricultural Economist in the Bureau of Agricultural Economics is regularly stationed at Clemson for research coordinated with that of the Agricultural Economics and Rural Sociology Department.

Agronomy Seniors make soil tests

The department also offers a strong program of graduate training. Seven men have received M.S. degrees in Agricultural Economics since September 1946. Eight others are now working toward such degrees in this department. The Agricultural Economics and Rural Sociology Department grows as Clemson grows.

Ag. Engineering

By ROBERT M. PRINCE

A curiculum in Agricultural Engineering was approved for Clemson in 1931. During the first five years, only one professor taught this course, Administration of the curriculum and the budget remained in the Agronomy Department until 1941 when the Board of Trustees established a Department of Agricultural Engineering. From this small beginning the Department has grown quite rapidly, and now, there are 141 students majoring in Agricultural Engineering, and a $250,000 Agricultural Engineering building is now under construction. In 1949, the South Carolina Student Branch of the American Society of Agricultural Engineers, located at Clemson, was given a certificate and cup as the highest award presented by Farm Equipment Institute to student Branches. Clemson is the second college in the South to receive this award.

Since its establishment in 1941, the Department has been headed by Prof. Geo. B. Nutt. The professors are W. N. McAdams and J. B. Richardson, E. B. Rogers, A. W .Snell and L. R. Hamett. In the Experiment Station there are four full-time technicians located at Clemson: G. H. Dunkleberg and W. P. Law, Associate Agricultural Engineers; J. S. Evans, Assistant Agricultural Engineer; and J. K. Park, Agricultural Engineer, U.S.D.A. BPISAE cooperating with the Department. At the Edisto Branch Experiment Station located at Blackville are M. R. Powers and V. K. Quattlebaum, Associate and Assistant Agricultural Engineers respectively. W. A. Balk, Assistant Agricultural Engineer, U.S.D.A. BPISAE, is at the Sandhill Branch Station at Columbia. He is cooperating with Frank Fendley, foreman of the cotton research program at that station.

The Bachelor of Science in Agricultural Engineering Degree has been conferred upon 176 men at Clemson since 1933. These graduates are employed in the fields of farming, research, education, sales, service and manufacturing. The records made by these men have been very outstanding, and up to date the positions for men in this field have been plentiful. Many great advancements have been made along agricultural Engineering lines in a relatively short period of time, and with Clemson's new Agricultural Engineering building and the present large staff, they look forward to still greater achievements in the future.

Agronomy

By W. W. ALLEN

The Clemson Agronomy Department was organized in 1914, with Dr. J. N. Harper as Head. After becoming Dean, Dr. Harper was succeeded by Professor H. J. Hutcheson, known by all his friends as "Daddy Hutch", a large scale farmer from Mississippi. Succeeding Professor Hutcheson was C. P. Blackwell, who later went on to Oklahoma A&M. It was during Blackwell's period of service at Clemson that the Extension Service of the Agronomy Division was part of the changed. In turn, Blackwell was succeeded by Dr. T. S. Buie, a Norris Medal man, now Regional Director of the Soil Conservation Service for the Southeastern Region, with headquarters at Spartanburg.

At present, the Head of the Department is Dr. H. P. Cooper, who received his B.S. degree from Clemson and his advanced degrees from Cornell University. In addition to his position as Head of the Agronomy Department, he is also the Dean of the School of Agriculture and Director of the South Carolina Experiment Station here at Clemson. Dr. Cooper also has the distinction of being Vice-President of the American Society of Agronomy.

Ag. Engineering students study soil conservation

Dr. Gilbeart H. Collings is now acting head of the department. He is affectionately known by all Clemson men as "The Lord". He received his B.S. degree from V.P.I., and his advanced degrees from the University of Illinois and Rutgers University. He has gained distinction for his book, "Commercial Fertilizers".

Other members of the Agronomy staff include: Jess W. Jones, Champ M. Jones, and R. C. Shelley. All of these professors are Clemson Agronomy graduates.

If a department is to be judged solely by the success and attainments of its graduates, then the Agronomy Department can well be proud of its efforts. To date, over 500 men have graduated in this field. Most of the graduates have gone into general farming, Soil Conservation Service, Agricultural Extension, Experiment Station work, plant breeding, teaching, soil analysis and crop specialist work.

Some have gone on to get advanced degrees, while others have taken positions with commercial concerns; such as fertilizer companies, seedsmen, and manufacturers of food products.

To quote Dr. Collings, the three chief objectives of the Agronomy Department may be stated as follows:

"The Agronomy Department strives first to give all Agronomy majors of our agriculture students a well-rounded education in agronomic subject matter, and it strives to inoculate a love for farming in the minds of these South Carolina boys that will result in a large percent of these men returning to farms in their home communities."

"Finally, Clemson must train a small specialty group equipped to pursue advanced research such as is performed by the South Carolina Station. Progress in agronomic science is almost entirely dependent upon the progress made in agronomic research and agronomic research cannot be expected to be successful if research workers are not well trained. For this reason, the Agronomy Department in 1947 began the instruction of graduate students which leads to the M.S. degree.

Animal Husbandry

By J. K. PRICE

The Animal Husbandry and Dairy Departments were originally under one head. After the first world war, the departments were separated and L. V. Starkey was put in charge of the Animal Husbandry work. He immediately started to improve the pastures and livestock owned by the department. At first a good herd of Duroc-Jersey and Poland China hogs was established. The Berkshire herd that was started a few years later was for many years the best in the United States.

The use of a polled bull and the purchase of a few heifers started a Polled Hereford herd that has constantly grown in numbers and excellence. As a result of the early foundations purchased by Professor Starkey, the department now has approximately two hundred hogs of the Berkshire, Duroc-Jersey, Poland China, Hampshire and Landrace breeds. There are ninety-two purebred Polled Hereford and twenty Angus cows in the breeding herds. Hampshire and Dorset sheep are available for class and experimental work.

The department is sadly lacking in office, class room, and laboratory space. In spite of this handicap, the department now has the largest enrollment of any department in the School of Agriculture. Animals from the Clemson herds have made a fine record in competition with the finest animals in the country and have done much to improve the quality of the livestock in South Carolina. Clemson graduates have a fine reputation in the South, and there is an increasing demand for more and more men from year to year. Plans are now under way for construction of a new Animal Science Building which will give the Animal Husbandry Department the facilities it needs so badly to carry on its educational and research programs.

Since the department was organized, Professor Starkey has been assisted by a number of men. A. L. DuRant and E. G. Godbey have been active in Animal Husbandry work since 1920. R. R. Ritchie joined the teaching staff at a later date. At the present time, L. V. Starkey is head of the Department and E. G. Godbey is Animal Husbandman in the experiment station. R. R. Ritchie, on leave, will rejoin the department in June. J. R. Cook, R. F. Wheeler, and W. C. Godley are on the teaching staff.

Botany

By HANS F. PHILIPPSTHAL

The Botany Department of Clemson since its early days has been a combination department of Botany, Bacteriology, Plant Pathology, and Forestry. The history of the Botany Department in the Experiment Station, however, antedates the founding of Clemson College, since the S. C. Experiment Station was a part of the University of South Carolina for a short time. Dr. G. F. Atkinson was the first Botanist at this Station in 1888-89. Later transferred his activities to Auburn, Ala., and then to Cornell University where he became an outstanding botanist.

Several men of note have been associated with the Department at Clemson. Among them was Clemson's first botanist and bacteriologist, Dr. A. P. Anderson, who served from 1897 to 1899. During his stay at Clemson, Dr. Anderson discovered the secret of "puffed cereals" while studying the rice smut disease. This discovery was important in the development of breakfast foods and also provided generous royalties for the inventor. He donated funds for the Anderson Fellowship which is awarded each year to aid an outstanding senior in agriculture in his graduate study.

Prof. Rosenkrans shows a freshman how to use a michoscope.

The number of faculty members was generally small; one or two men for the entire department, due to the limited enrollment of the College as a whole. From the year 1930 to 1939, the Department began adding members to the faculty because of the increasing enrollment.

Professor D. B. Rosenkrans (M.S. Wis.) has been a member of the Botany Department since 1917, and is still a full-time teacher.

Full-time teachers now on the staff in addition to Mr. Rosenkrans include:

Dr. J. B. Whitney, Ph.D., Ohio State, began his tenure in September 1946. He teaches Plant Physiology and General Botany.

Dr. R. W. Rutledge, Ph.D., Chicago, trained in Plant Morphology and Ecology also joined the staff in 1946, and now teaches General Botany and Plant Morphology. Dr. Rutledge has taken the lead in recent months in a complete revision of the laboratory work in the general course.

Dr. A. C. Mathews, Ph.D., North Carolina, came to Clemson in September, 1947, and teaches General Botany and Plant Pathology. His advanced training was in Plant Morphology and Mycology.

Mr. W. B. Aull, Jr., became Professor of Bacteriology in 1915 as the first full-time teacher of Bacteriology at Clemson. Professor Aull remained at this job until 1941 even though he was made Vice Dean of Agriculture in 1936. Mr. Aull was forced to relinquish his services due to ill health in 1945. He died in the spring of 1949. The department was short one teacher until 1947 when Dr. J. M. Rush, Ph.D., Purdue, began his duties here. His advanced training was in Immunology and Taxonomy. He is helping to develop a training program for water purification and sewage disposal for plant operations in South Carolina.

Dr. W. P. Van Eseltine, Ph.D., Cornell, who began teaching in September 1948, is the latest addition to the teaching staff. These two men share the load in General Bacteriology, Dairy Bacteriology, Soil Bacteriology, and Sanitary Bacteriology.

It is interesting to know that the teachers listed in the catalogs of 1908-1911 were under "Botany and Forestry". Dr. Barre, who started his work in 1907 says he taught Forestry from the beginning. Eventually Mr. Rosenkrans became Clemson's Professor of Forestry. This course was offered occasionally during the early 1900's to 1947. Dr. K. Lehotsky came to the school in 1947 and is now teaching three courses in forestry. Dr. Lehotsky did his undergraduate work in Prague, Checkoslovakia, and his graduate work at Michigan. He was once the Head of the Forestry Department in the Agriculture School at Viscosa, Brazil.

The Department of Botany endeavors to teach the students of Agriculture, Pre-Med., Arts and Sciences and Education of the Plant Life and give them a general knowledge of the many phases of Botanical science. Those students who take the advance courses acquire a concise knowledge of the various phases of Botany. Many graduates return to take courses they were unable to take while at Clemson because they have found the limitations due to the lack of their Botanical background. Dr. G. M. Armstrong prides himself in the fact that he has encouraged so many graduates to do graduate work.

There are many opportunities in the field of Botany such as research work with state and federal agencies and with private agencies such as manufacturers of foods and fibers, weed control chemicals, and seedsmen. Plant Pathologists also have opportunities in nursery, orchard and food inspection as well as pathologist-plant breeders with seed companies and other research agencies. This field is open to graduates with a future of security.

Dairy

By J. E. CUSHMAN

Clemson's Dairy Department has seen vast developments in the 33 years of its existence. A brief historical review of the department tells us that in 1912, the dairy building that is used today was completed. It was one of the most modern and well-equipped building of its kind any where in the country at that time. At the same time a new barn was erected on the dairy farm, which was sufficiently large to accommodate both the experiment station and the college herds.

There wasn't a distinct dairy department, however, until 1917. In the fall of that year, the dairy division, as it was then known, separated from the Animal Husbandry Department. This first Clemson Dairy Division was headed by Professor W. W. Fitzpatrick, a native of Kentucky and a graduate of the University of Kentucky. He came to Clemson in 1941 and worked as the livestock demonstration expert until he became head of the newly-formed dairy division.

In January of 1920, Professor J. P. LaMaster, also a native of Kentucky and a University of Kentucky graduate, came to Clemson with the Extension Service. On October 1, 1920 he succeeded his former classmate, Professor Fitzpatrick, who resigned to accept a position in dairy industry. It has been through Professor LaMaster's untiring efforts that the Dairy Department has become one of the leading dairy departments in the Southern Agricultural Colleges.

The dairy department, offers 16 undergraduates courses with a total of 1206 student hours of instruction a year to 417 students. In 1946 Clemson College inaugurated its graduate school, and the dairy department is offering work on this level.

On September 1, 1922 Professor B. E. Goodale came to Clemson from the Iowa State College to take over the direction of the dairy plant work and to teach dairy manufacturing, and his knowledge of every phase of plant work has been invaluable in the development of the department.

The primary objective of the Dairy Department is the education and direction of its students for a successful and useful future in the field of dairying. The dairy department now has the largest staff since its organization. Composing this staff are: G. M. Barnett, Jr., Associate Dairyman; G. W. Brandt, Associate Dairy Husbandman; C. C. Brannon, Associate Dairyman; W. M. DuPre, Assistant in Dairying, Herd Manager; B. E. Goodale, Professor of Dairying; Victor Hurst, Associate Dairyman; W. A. King, Professor of Dairying; J. P. LaMaster, Head of Dairy Department; J. T. Lazar, Jr., Assistant Professor of Dairying; and W. M. McKay, Assistant in Dairying.

Due to the present emphasis on dairying and livestock in general, for the diversification of agriculture of South Carolina, it is hoped that a modern building will be constructed in the near future.

Entomology

By ALBERT C. WHITE

Since the opening of Clemson there have been courses in Entomology and Zoology taught, but the records do not show Entomology as a separate division until 1899-1900 when Dr. A. P. Anderson was listed as Instructor in Entomology. He was followed by Charles C. Chambliss, who then was succeeded by Geo. G. Ainslie. Following G. G. Ainslie, A. F. Conradi took over the position, and under him in 1941, the first students in Entomology to graduate at Clemson were awarded their B.S. degrees. Up to the present time one hundred and nineteen men have earned their

(continued on page 20)

The Privilege of Service

We of Daniel Construction Company have been privileged to serve Clemson through a succession of projects, including the Sirrine Textile Building, the new Barracks, and now the Tom Littlejohn Homes, the Faculty Apartments and the new Clemson House. All of us at Daniel, especially those who are Clemson graduates, are proud to have played a part in the growth of this institution, yet our pride goes far beyond the satisfaction gained in the mere building of these projects.

Our deepest satisfaction stems from the knowledge that here, in serving Clemson, we are also serving democracy, for only in a country such as ours could such an institution as Clemson exist. Here and in similar institutions throughout our country you have the privilege to study the subjects of your choice, to think freely and independently, to arrive at your own conclusions, to plan ahead for your own life in your own way.

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THE EXTENSION SERVICE

Its Growth and Achievements

By T. H. JEFFORDS
Animal Husbandry '51

Our present-day extension service in South Carolina is the culmination of many worthwhile efforts in the field of agricultural education. It came into existence prior to 1800, when agricultural societies first came into being and were instrumental in providing public lectures on agricultural topics.

The first of these groups was organized in Georgetown in 1740; another in Charleston in 1785; followed by similar groups at Pendleton in 1815; and Beech Island and Darlington in 1846. By 1843 sixteen agricultural societies had been organized in South Carolina.

Between the close of the Civil War and the enaction of the Smith-Lever Act, several national farm organizations came into being with educational plans in their programs. Among these were the Grange, Farmers Alliance, and the Farmers Union. During this same general period—the 1818's—Farmers Institutes were developed under the auspices of the State Board of Agriculture and the University of South Carolina. With the establishment of the Clemson Agricultural College in 1893, these societies were taken over by that institution and continued until the passage of the Smith-Lever Act.

In the summer of 1907, Dr. Knapp, one of the nation's foremost leaders in Farm Demonstration Work, visited this state for the purpose of establishing this work in South Carolina. That fall, J. Phil Campbell, State Agent; two District Agents; and five county agents were appointed. This constituted the nucleus around which extension work has developed in South Carolina. Other early leaders in extension work were active in Dr. Knapp's time. A. L. Easterling, Supt. of Education of Marlboro County, organized the first boys corn club in South Carolina. The year 1909 witnessed the organization of similar clubs in six other counties with a total state enrollment of 327 members. From this small beginning has grown the present day system of 4-H Clubs.

In February, 1910, Miss Marie Cremer (Mrs. C. H. Seigler) a rural school teacher, in Aiken County, organized a girls tomato club with 22 charter members. Soon afterwards she was placed in charge of this work for the state, with headquarters at Winthrop College.

In 1911, the work was first extended to Barnwell County and Mrs. Dora D. Walker was appointed as County Tomato Cub Agent, thus becoming the first county home demonstration agent in the world.

Mr. O. B. Martin is generally credited with being primarily responsible for the development and spread of Four-H club work among boys and girls and home demonstration work among farm women.

Negro extension work was begun in South Carolina in Bamberg County in 1907, with the appointment of E. P. Jenkins as Farm Demonstration Agent for Negroes.

At the present time organized extension work for Negroes is being conducted in South Carolina by 29 Negro agricultural agents and 27 Negro home demonstration agents. The Negro extension workers are under the immediate supervision of a State Supervisor of Negro Home Demonstration Work for women. These supervisors, with one assistant supervisor each, have headquarters at the State College, Orangeburg, S. C.

An Extension Service worker is shown giving a group of farmers the latest information on cotton boll-weevil eradication.

Several legislative acts were instrumental in making our Extension Service possible. The first organized effort on the part of Congress to cooperate with the various states in providing funds for teaching agriculture, resulted in the passage of the Morrill Act in 1862. This provides for the establishment of the Land Grant Colleges. The original act with its amendments is the basis for later acts affecting extension work.

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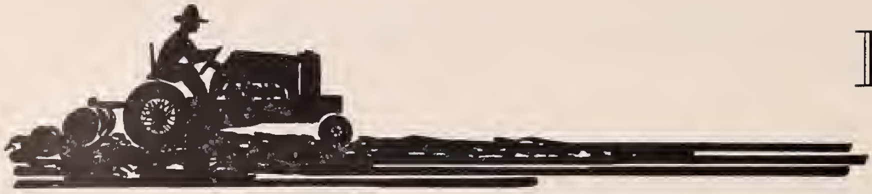


BETWEEN

Pictured are four of the agricultural students who received top honors at the Annual Scholarship Recognition Day. From left to right are: Robert M. Prince, Winston H. Sibley, Leonard R. Allen, and Calvin C. Taylor.

AGRICULTURAL STUDENTS WIN AWARDS

At the Annual Scholarship Recognition Day, which was held on May 3 in the College Chapel, a number of awards were presented to students majoring in agriculture. Alan B. Sibley, Chancellor of Alpha Zeta, presided over the presentation of these awards.

The Dansworth Foundation of St. Louis awards fellowships each year to two agricultural students. One of these is given to an outstanding member of the Junior Class majoring in the Animal Science field. The award amounts to $180.00 and porvides expenses incident to the attendance of the recipient at a two-weeks summer short course for training in salesmanship at the laboratories of the Ralston Purina Company in St. Louis and also for a two-weeks stay at the American Youth Foundation Leadership Training Camp at Shelby, Michigan. The fellowship for the coming summer was awarded to Winston Hall Sibley, of Greenville, junior in Animal Husbandry.

The second of these Danforth fellowships amounting to $50 was awarded to an outstanding freshman expecting to major in the animal science field. It provides for a two-weeks stay at the Leadship Camp at Shelby, Michigan—the same camp to which the recipient of the Junior award attends. The student receiving this award was Robert E. Farmer, Jr., of Newport, Tenn., freshman in Pre-Forestry.

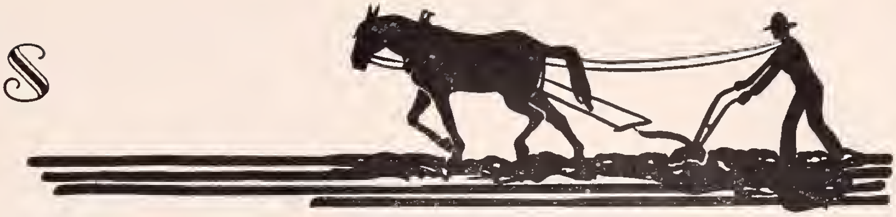
The Sears Roebuck Foundation provides funds each year for a number of scholarships awarded to freshmen students in agriculture on the basis of a competitive examination. A Sophomore scholarship of $200 is also provided by Sears Roebuck Foundation for that student among the winners of Sears Roebuck freshmen scholarships who makes the highest scholastic record during his first year. The winner of this scholarship for the present college year, Robert M. Prince, agricultural engineering major of Lynchburg, S. C., was determined last fall. Mr. Prince was asked to stand so that he and his achievement could be recognized.

Each year the Honorary Agricultural Fraternity of Alpha Zeta gives a prize to the sophomore student in agriculture having the best scholastic record for his college course. The prize this year—a 5-year subscription for the Farm Quarterly, outstanding agricultural publication, was presented to Leonard R. Allen, of King's Creek, S. C.

The Borden Company Foundation of New York City makes available each year a scholarship of $300 to the agricultural student who in addition to his other courses must have taken at least two courses in Dairying, must have completed the junior year, and must have the highest grade point ratio of students in that category. The scholarship for the present year was awarded last fall to Calvin C. Taylor of Mauldin, senior in Dairying. Mr. Taylor was asked to stand so that his achievement could be recognized.

Mrs. C. L. McCaslan of St. Mathews, has established a fund of $1000 to be known as "The Clark Linsay McCaslan Memorial Fund" in memory of her late husband. The income from this fund will be awarded annually to the most deserving student in Agricultural Engineering. This year the income amounting to $25 was presented to Carl

E FURROWS



Henry Thomas of Holly Hill, senior student in Agricultural engineering.

The Anderson Fellowship of $350 is awarded by the faculty of the School of Agriculture each year to that member of the graduating class who has the best scholastic record among those desiring to pursue graduate work. The graduate studies may be carried on at Clemson or at another institution, as the recipient desires. The fellowship for the college year 1950-51 was presented to James K. Price, senior in Animal Husbandry, of Gaffney.

POULTRY CLUB EATS CHICKEN

On April 13, the members of the Clemson Poultry Club hustled to the Y.M.C.A. Cabin where they were feted with a meal of their favorite meat. Mr. Harvey Greene of "Seven Oaks Farm" (one time Regimental Executive Officer of the Clemson Corps of Cadets) gave an inspiring talk on the possibilities of the poultry industry in South Carolina, and opportunities for poultry majors in the future.

PHI ETA SIGMA TAPS TWO AG FRESHMEN

Robert Farmer, Pre-Forestry student from Newport, Tenn., and Robert Duke, Animal Husbandry freshman from Kingstree, S. C., have recently been selected for membership in Phi Eta Sigma, honorary fraternity for freshmen who have grade point ratios of at least 7.5.

KAPPA ALPHA SIGMA ELECTS OFFICERS

An election of officers for next year was held during a March meeting of Kappa Alpha Sigma. Those elected were: Fred D. Sease, President; Charles P. Hamer, Vice President; John H. Pitts, III, Secretary; Alan B. Sibley, Treasurer; and Thomas W. Culp, Parliamentarian.

REPRESENTATIVES ATTEND SCIENCE MEET

Attending the meeting of the South Carolina Academy of Science, which was held in Rock Hill on April 22 were Dr. H. P. Cooper, Dean of the School of Agriculture; Dr. G. H. Collings, Professor of Soils; Dr. R. W. Rutledge, Associate Professor of Botany; Dr. J. M. Rush, Professor of Bacteriology; and Dr. J. B. Whitney, Associate Professor of Botany. Two sudents, Hans F. Phillipsthal, Junior Botany major and George D. Grice, senior majoring in Biology also attended the meeting.

Members of the Senior Judging Team include left to right: G. H. Liebenrood, R. B. Johnson, Jr., F. M. Flowers, Winston H. Sibley, and B. C. Patton.

JUDGING TEAM ATTENDS MEET AT L.S.U.

The Clemson Senior Livestock Judging Team composed of F. M. Flowers of Darlington, W. H. Sibley of Greenville, B. C. Patton of Fountain Inn, R. B. Johnson, Jr., of Sumter and G. H. Liebenrood of Mt. Pleasant recently entered the Southeastern Inter-Collegiate Judging Contest which was held at L.S.U., Baton Rouge, La. Prof. J. R. Cook, Associate Professor of Animal Husbandry and Judging Team Coach, also attended the contest with the Judging Team.

Classes of cattle, swine, quarter-horses, and sheep were judged during the meet. F. M. Flowers was 3rd high individual scorer of the contest and B. C. Patton was individual high scorer on the classes of quarter-horses judged.

BLOCK AND BRIDLE CLUB ELECT OFFICERS

At a meeting of the Block and Bridle Club the following men were elected to offices: Winston H. Sibley, President; Frank M. Flowers, Vice President; Robert B. Johnson, Secretary; L. W. Clarke, Treasurer; and C. M. Baldwin, Marshall.

Agrarian Philosophy

By

The Editor

FEDERAL AID TO EDUCATION

Do we want federal aid to education? That is a question currently being asked in political circles.

Our present federal administration is trying every conceivable means to get their hands into the state's functions. Federal aid to education is just one of the many "Fair Deal" schemes they are trying to push off on us. Granted, — it sounds good—the government just **gives** us money to better equip our schools, and to increase teachers' salaries.

But who will pay for it? You will!!! The South Carolina tax payers will pay a lot more in increased federal taxes than they will receive back in federal aid. After all the government agencies in Washington have taken a bite out of the tax dollar, there will be nothing left but a big government payroll.

At the same time that the government "gives" us money for education, they will give us orders about what will be taught, who will teach, and **who** will be taught in the schools. Once they have their finger in our school system, there will be no limit to the dictatorial powers they might use.

We must be constantly on guard to defend our **states rights** against the infringements of the federal government. Remembering this, let's choose our public officials wisely this summer.

A SALUTE

We often underestimate the invaluable services of our state agricultural workers, both with the extension service and the experiment stations.

The men of the experiment stations labor with the intricate problems of science pertaining to agriculture, analyze them, and bring forth solutions which will aid the farmer to produce higher yields and better quality products. They breed and produce better varieties of crops; they study the nutritive requirements of different plants; they study the environmental effects on crops; and they study the diseases and insects which bring disaster to the respective crops.

After the workers of the experiment stations have closely scrutinized the various problems confronting the farmers, they pass the solutions on to the extension service. Here the information is disseminated, edited an dsent to the farmers through various publications, extension specialists, and county agents.

Through mutual cooperation between the U.S. Department of Agriculture, the extension service and the experiment stations, these state agencies fight to promote better agricultural practices from planting the seed to harvesting the crop. Though often over worked and under paid, these agricultural workers sacrifice personal advancement to solve the complexities of agriculture and thereby improve the living standards of South Carolina's farmers.

Here at Clemson, the extension service is cramped up in one wing of the agricultural building, which is certainly inadequate space for such an essential organization. The extension service and the experiment station at Clemson is in desperate need for more room. A new building would certainly be money well spent for a great cause.

AG STUDENTS TO SPONSOR FAIR

Next year the students of the School of Agriculture will put on an Ag. Fair, which will be a series of exhibits displayed by the different departments.

The recent Engineering Fair under the able direction of Sam Pettit was a great success. Sam and his associates are to be congratulated on a fine job.

At a recent meeting of the Ag. Council of Club Presidents it was decided to have the fair on Homecoming November 4, 1950. This is subject to approval by the dean.

Alan Sibley, Chancellor of Alpha Zeta, will act as chairman of the fair committee and each club president will supervise the exhibits in his respective department.

To make the fair a real success it will take faculty-student cooperation and a little work from everybody. Let's give the fair a lot of thought this summer and come back to school next fall full of ideas. A few ideas and a little ingenuity is all it will take to put the fair over with a bang. Let's have a good one. What say????

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Department History

(continude from page 13)

B.S. degrees in Entomology, and at this time there are 16 students enrolled in the department. Dr. Frank H. Lathrop became head of the department after Conradi and he was followed by Prof. Franklin Sherman. Prof. Sherman became the head of the department for the 1925-26 term, and retained this position until his death in 1947. Mr. J. A. Burly, Entomologist of the S. C. State Crop Pest Commission, became acting head of the department after Professor Sherman's death. He acted in this capacity until November 1, 1949, at which date Dr. M. D. Farrar assumed the duties as head of the department. Dr. Farrar came to us from the Crop Protection Institute in Durham, New Hampshire where he worked with the late W. C. O'-Kane, founder of the Crop Protection Institute.

At the present time the Entomology teaching staff is comprised of Professor David Dunavan, R. E. Ware, E. H. Warnhoff, Jr., and Morey Lipton.

The members of the experiment station staff are: Dr. James H. Cocran, Dr. William F. Chamberlain, Mr. David Dunavan, and Miss Frances McAllister. This group is working on several projects. These include the control of fruit insects, especially those of peach and nuts, and the control of the tomato fruit worm, insects affecting stored grains, the cowpea curculio, and the sweet potato weevil. Also work in the study and improvement of the honey bee is being carried.

Mr. J. A. Burley, Mr. George M. Anderson, Mr. W. H. Purser and Dr. John K. Reed are performing the duties of the Crop Pest Commission. This department is spending much time trying to control or eradicate the white fringe beetle, the sweet potato weevil, and the phony peach disease. Annual inspections are made of nurseries, greenhouses, and apiaries to prevent the introduction and spread of injurious insects or of insect borne diseases.

Horticulture

By W. M. MANNING

Instruction in horticultural subjects at Clemson College began with the first class that entered in 1893 under J. F. C. DuPre, Instructor in Horticulture and Horticulturist for the S. C. Agricultural Experiment Station. The courses then offered were (1) Home Gardening and Truck Farming, (2) Pomology, (3) Viticulture, (4) Floriculture, (5) Canning, and (6) Experimental work. Although the curriculum was very limited in scope, the students were only allotted two hours of lecture and four hours of laboratory instruction per week for one sophomore semester and two hours of lecture for each of the two senior semesters. The following significant statement is descriptive of these early teaching methods: "The student is required to labor and is thereby taught by actual experience."

Beginning in 1912, all agricultural students studied the same courses

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Department History

(continued from page 20)

the first three years. Only during the senior year were students permitted to specialize. Seniors could choose either Agronomy, Botany, Chemistry, Animal Husbandry, Entomology, Veterinary Science or Horticulture; however, all students received diplomas in Agriculture at the completion of their courses. The first diplomas were given in Horticulture (as well as in other then organized departments) at commencement, in 1922. At present eighteen courses are offered, and to date 305 men have graduated in Horticulture.

Originally the department was provided with one T-shaped greenhouse, which is still in use today, a canning house, and a packing house. From time to time these installations have been modernized and new structures added. In 1930 a laboratory class room and two research laboratory rooms were erected. The horticultural products laboratory was built in 1940. Two 32 by 100 greenhouses were built in 1947 to be used mainly for student floriculture work.

In 1899, a horticultural building was completed near the present location of the greenhouses. Classes were held in this building until the completion of the present Dairy Building at which time the department was allotted two classrooms and two offices. Finally in 1937, the horticulture department was moved to its present location in Long Hall where it occupies six offices, three classrooms, and one student laboratory with suitable cold storage facilities.

The horticultural orchards and experimental gardens were first located adjacent to the greenhouse area. Due to adverse weather conditions resulting from a poor topographical location, the orchards were subsequently abandoned and by 1916 new grape vineyards and apple, pear, pecan, and peach orchards were established east of the college campus on all sides of the junction of the Greenville-Clemson and Anderson-Clemson highways. Later under the direction of Professor A. M. Musser, present head of the Horticulture Department and head horticulturist of the South Carolina Experiment Station, an extensive orchard was established six miles west of Clemson in Oconee County. These orchards are primarily devoted to instructional and research purposes.

Members of the horticultural staff, working in close cooperation with the S. C. Experiment Station, have done outstanding research in fields involving the breeding, cultivation, nutrition, crop pest control, and harvesting methods of horticultural crops. Several accomplishments of this work includes the selection of a spineless variety of okra, the development of downy mildew resistant cucumbers, two varieties of which are named Palmetto and Santee, the production of new varieties of cayenne and paprika peppers which make possible easier harvesting, and many improved methods of canning and freezing fruits and vegetables. In addition to these contributions, preventive measures for the

(continued on page 24)

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SERVING CLEMSON STUDENTS SINCE
1908

Clemson South Carolina

Department History

(continued from page 22)

control of blight of pears and certain varieties of apples, formerly a serious threat to the fruit industry, have been perfected.

At present, a program is underway to ascertain the value of applying minor fertilizer elements to fruit and truck crops. This appears to be the answer to many questions concerning nutritional deficiencies on South Carolina farms. The growing interest of Piedmont farmers in Turkish tobacco production is an example of Clemson's efforts to promote new cash crops.

Poultry

By W. T. DERIEUX

Back in the early nineteen hundreds, there was some poultry work at Clemson, but it was not until 1926, when Bernard Baruch gave funds to the college, that the present poultry plant was built on the Anderson highway. Ever since the Poultry Department became separate from the A.H. Department Prof. C. L .Morgan has been its head. The plant now has facilities for 2,000 breeding hens, and 200 breeding turkey hens, and facilities for raising 5,000 or more chickens and 1,000 turkeys.

Short Courses are given to poultrymen and farmers to improve their knowledge of poultry and to further the work of the National Poultry Improvement Plan. The Poultry Department offers courses to students in general poultry, poultry diseases, poultry marketing, poultry feeding, poultry breeding, and incubation.

The present poultry staff consists of C. L. Morgan, Head, who was educated at the University of Kentucky, Iowa State College, and University of Wisconsin; J. B. Cooper, Associate Professor, educated at the University of Kentucky; M. A. Boon, Associate Poultryman, educated at the University of Nebraska; and C. P. Willimon, Assistant in Poultry Husbandry, who graduated from Clemson.

V. A. E.

By Q. A. JOWERS

The Department of Agricultural Education at Clemson College was organized in 1916 by Mr. Verd Peterson, who was made State Supervisor of Vocational Agriculture.

In 1918, Professor W. G. Crandell was appointed to succeed Mr. Peterson as Head of the Agricultural Education Department, and he remained with the department until his retirement in 1946. In 1933, The School of Vocational Education was organized under the leadership of Dean W. H. Washington, and the Department of Vocational Agriculture was transferred to this school from the School of Agriculture.

The Department has expanded from a one-profesor department to a five-professor organization, which is now headed by Professor J. B. Monroe. Professor Monroe teaches courses in agricultural education and a graduate course in occupational

(continued on page 26)

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Your ROTO-BALER rolls the windrow into a bale with leaves wrapped inside, protected from rain.

To feed it, you simply unroll a bale down the feedway . . . and there you have the hay just as it was in the field. The soft leafiness, the color and protein are still there.

With your own Roto-Baler, you're ready to go the hour your hay is cured. You can breathe easy when your crop is in rolled bales, for they shed rain like a thatched roof. Rolled bales store compactly, will not buckle; may be unrolled or fed whole in the open feedrack.

Pitchfork labor is no more when you Roto-Bale your hay or straw. The ONE-MAN ROTO-BALER is priced for practical *home ownership* on family farms.

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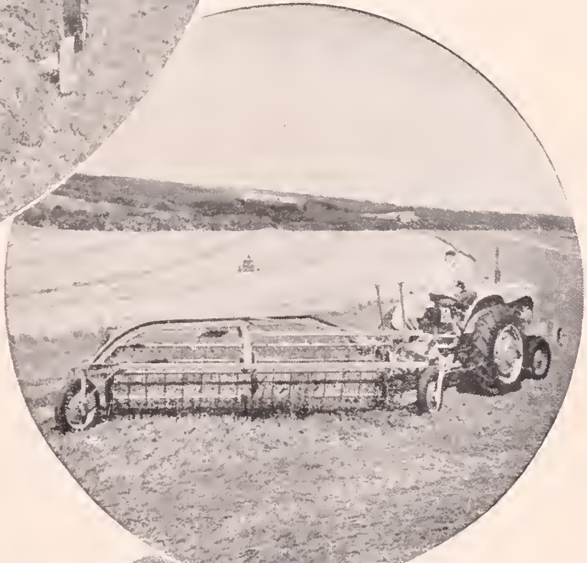

The POWER-DRIVEN A-C Rake steers true, makes ideal wide windrows for Roto-Baling.

(Below) The new Allis-Chalmers Bale Loader picks up bales lying at any angle.

Department History

(continued from page 24)

guidance. Working with Mr. Monroe is Associate Professor B. H. Stribling who teaches educational psychology to all students planning to become teachers. He also assists in training for the teaching of agricultural education. He is a member of the Graduate Comittee and spends a great deal of time as advisor for graduate students in Education. Associate Professor W. C. Bowen, likewise, assists in the training of teachers of agriculture. He also works with the Future Farmers of America and spends some time with teachers out in the state. In addition to assisting in the teachers-training at Clemson, Associate Professor F. E. Kirkley has done much with the high school agricultural teachers and boys, adult farmers, and veterans.

The demand for agricultural teachers has been so great that practically all graduates who desire to teach have been placed immediately upon graduation.

BLOCK AND BRIDLE HONOR JUDGING TEAM AT BARBECUE

The Block and Bridle Club held a barbecue supper Friday, May 19, at the YMCA cabin in honor of the freshman and Sophomore Judging Team. Many members of the club contributed to the preparation of the banquet; consequently, the barbecue supper and program were a great success, and all persons attending enjoyed the activities.

Winston H. Sibley, President of the Block and Bridle Club, presided and introduced the speaker of the evening, J. M. Eleazer, Extension Information Specialist of the Agricultural Extension Service. Mr. Eleazer gave a very interesting talk, choosing for his topic, Changes Taking Place in Agriculture.

Several awards and gifts were presented during the proceedings. The Senior Judging Team presented Professor J. R. Cook with a Stetson hat in appreciation of the time he has spent while serving as coach of the team.

J. K. Price, senior of Gaffney, received The Merit Trophy, an award given by the club to the senior in Animal Husbandry who has the best qualifications based on scholarship and contributions to the activities of the club.

Dr. R. F. Poole, President of Clemson, announced the winners of the Freshman and Sophomore Judging Contest. The men receiving the awards were as follows: H. O. Vaigneur, A. W. Leland, J.R. Tolbert, E. Campbell, H. R. Chamblee, and R. D. Wingard.

Faculty members of the Animal Husbandry Department that were present included Professors W. C. Godley, R. F. Wheeler, E. G. Godbey, and J. R. Cook. Coach Frank Howard, Head of the Athletic Department and "Colonel" Cook, College Herdsman, were also present.

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- Cooked luncheon loaves

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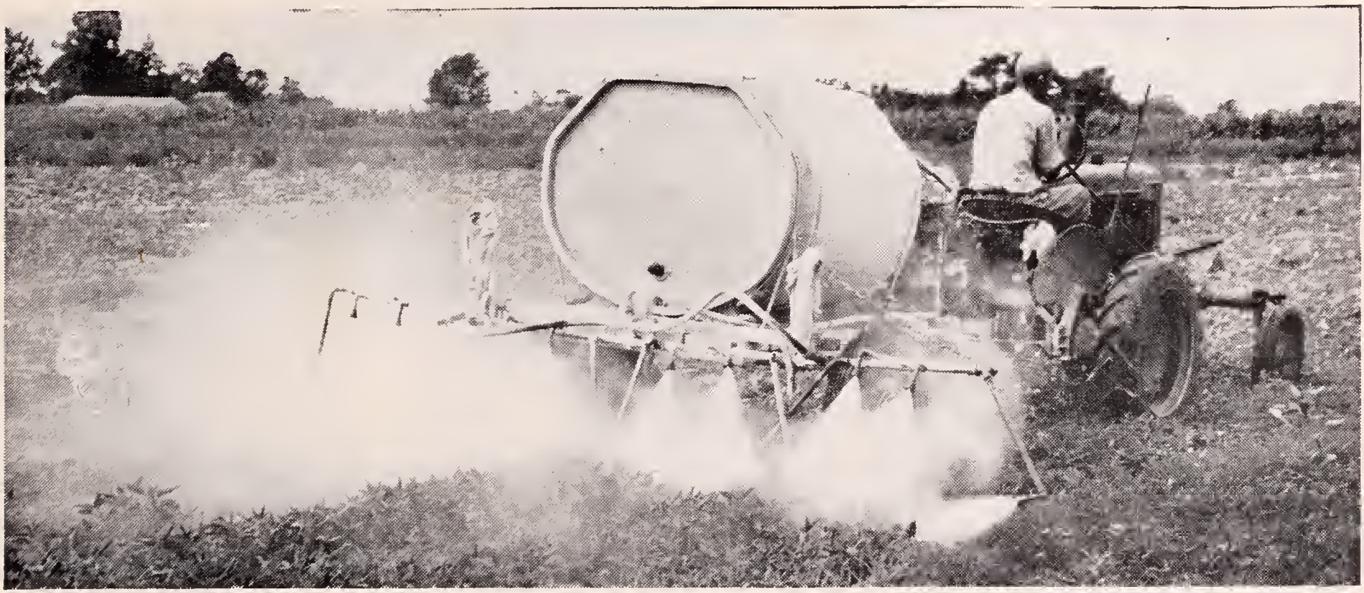
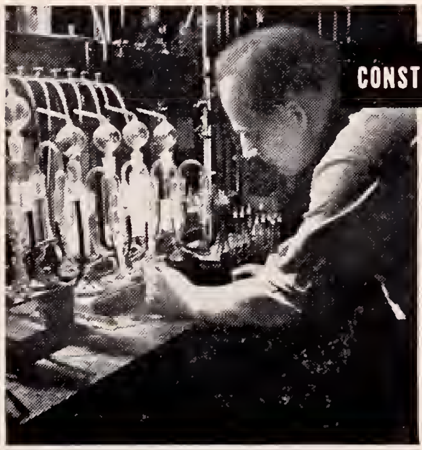


Spraying CARROT CROP with Esso Weed Killer 35.

to weed the Esso way!

ESSO WEED KILLER 35 is proving a great help in vegetable farming in eliminating harmful weeds. It is being used effectively on carrots, celery, parsley and parsnips, and is being tested on other crops. Proved by tests at several state farm experimental stations, this product has saved *time* and *work* in cultivation . . . produced *large* and *healthy* yields for *great* profits!



CONSTANT RESEARCH BY ESSO DEVELOPS HIGH-QUALITY PRODUCTS FOR PROFITABLE FARMING

At one of America's largest and most modern petroleum research centers, Esso engineers and technicians are constantly seeking new ways to make farming easier, better, more profitable. New products and methods are developed and tested in cooperation with state farm experiment stations to meet farming problems.

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Armour Quiz . . . Test your knowledge!

Check the answers you believe correct, and see how much you know about the livestock and meat packing industry.

Questions

1. Approximately what percent of the value of beef animals is by-products on an average?
☐ 2% ☐ 10% ☐ 18%
2. What new Armour by-product holds promise of getting more iron from mines?
☐ Ammonia ☐ Glue ☐ Chemicals made from fats
3. Which of these variety meats is richest in the B vitamins?
☐ Brains ☐ Liver ☐ Sweetbreads
4. The pituitary glands of approximately how many hogs are required to produce one pound of ACTH? (ACTH is Armour's new arthritis remedy).
☐ 4,000 ☐ 400,000 ☐ 4,000,000

Answers

1. About 90% of the value of a beef animal is in the meat—only about 10% is in inedible by-products.
2. Chemicals from fats increase mining efficiency, and help recover minerals from mines once considered unprofitable.
3. Liver. "Variety meats" (hearts, tongue, kidneys, brains, etc.) are getting more popular because they are both delicious and nutritious.
4. 400,000. ACTH is one of many medicinals produced by Armour from animal glands. Others include insulin and liver extract.

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AFFAIRS OF ALPHA ZETA

By GEORGE P. SALLEY

At a recent meeting of Alpha Zeta, the National Agricultural Fraternity, the following men were selected to hold offices: Chancellor, Alan B. Sibley, Jr., Agronomy Junior of Greenville; Censor, Hal E. Bland, Agricultural Engineering Senior of Gaffney; Scribe, Robert M. Prince, Agricultural Engineering Junior of Lynchburg; Treasurer, Winston H. Sibley, Animal Husbandry Junior of Greenville; and Chronicler, Wyndham M. Manning, Jr., Horticulture Junior of Columbia. Professor J. B. Cooper of the Poultry Husbandry Department was elected as one of the fraternities' Junior Faculty Advisors. Mr. B. D. Cloaninger, Head of the Fertilizer Inspection and Analysis Department, retired as Senior Advisor, and Professor W. P. Law of the Agricultural Engineering Department will serve as next years Senior Advisor. Professor A. W. Snell also of the Agricultural Engineering Department will continue to serve as Junior Advisor.

ANNUAL BANQUET

Alpha Zeta held its annual banquet on Thursday, May 4, at the Lutheran church. Alan Sibley, Chancellor, introduced Mr. Theo L. Vaughn, a Clemson graduate who was main speaker of the evening. Mr. Vaughn, who is of Anderson, spoke on Job-Opportunities in Agriculture. Mr. Vaughn, a Clemson graduate who spent the earlier part of his career serving with the Clemson Extension Service, recently returned from Central America, where he had been working with the United States Department of Agriculture; consequently, the banquet was somewhat a "homecoming" to him. The banquet was thoroughly enjoyed by all Alpha Zeta students, faculty members, and all guests present.

Saturday Night Is the BIGGEST NIGHT of the Week!

On Saturday night, the chores are finished a little earlier . . . second helpings go begging at the supper table . . . friendly yard lights wink out like sleepy stars as byroads and highways funnel farm families into main street until stores and sidewalks overflow.

The menfolk gather on street corners to speculate on the weather, to brag about their livestock, to swap experiences and trade advice. Farm women track down bargains, and talk over news that will be printed in the next edition of the Weekly Herald. Youngsters splurge their allowances at popcorn stands and ice cream parlors.

Folks use shopping as an excuse for coming to town, but the thing they really look forward to on Saturday night is the community reunion. They delight in meeting old friends and making new ones. They enjoy trading with storekeepers who know their needs as well as their names.

Saturday night in small-town America—with its friendliness, and neighborly helpfulness—is a breath of warmth in a cold, cynical world. No wonder a walk down Main Street renews one's faith in America and rekindles the hope that we may yet use this Saturday night spirit to bring peace and plenty to mankind.

JOHN DEERE

MOLINE • ILLINOIS

Experiment Station

(continued from page 9)

early progress of the experiment station.

Mr. Melton Whitney, outstanding authority in soil science, organizer and former chief of the Bureau of Soils, was the first active head of the South Carolina Experiment Station. The title of Professor of Agriculture and Vice-Director of the Experiment Station was given him. Dr. J. M. McBride, the President of the University of South Carolina, was given the added title of Director of the Station.

In 1890, when the station was moved to Clemson College, the president of the college was officially designated as director, with Professor J. F. Duggan as vice-director in charge.

The third man in whom was invested the active responsibility of the experiment station was Col. J. S. Newman, who directed the destiny of the station from 1892 to 1894 and again from 1898 to 1905. W. L. McGee was agriculturist in charge from 1894 to 1897, and W. J. Quick was vice-director in 1897.

Dr. J. N. Harper was made Director in 1905 and held this position until 1916. He was succeeded in April, 1917, by Dr. H. W. Barre. The experiment station is greatly indebted to the work of these outstanding men, as well as to their more recent successors. I mean, of course, Dr. H. P. Cooper, present Director of the Station and Mr. R. A. McGinty, the present Vice-Director.

The S. C. Experiment Station has been organized in strict accord with the will of the General Assembly. The Station is an integral and essential part of the college. Today there are twenty divisions; Agricultural Economics, Agronomy, Agricultural Engineering, Animal Husbandry, Botany and Bacteriology, Dairy, Entomology, Farm, Home Economics, Horticulture, Veterinary, Coast Station (Summerville), Pee Dee Station (Florence), Sandhill Station (Columbia), the Truck Station (Charletson), and the Edisto Station (Blackville). Also, two regulatory agencies function as divisions of the Station. These are The Crop Pest and Seed Certification Commission and the Fertilizer Inspection and Analysis Division.

The work carried on by the Station has been invaluable to the state. There is no way of computing the monetary value of this work. The only measure we have is the continuous rise in the standard of living in the state through practical education of, and direct aid to, the farmer.

It would be impossible to list the vast range and scope of the experiments carried on by the Station. Every year a book entitled "The Annual Report of the South Carolina Experiment Station" is published describing the experiments carried out the previous year.

Among the more important works being carried on at the present time at Clemson, is the work being done with the new organic insecticides and fungicides. These materials, principally Benzene Hexachloride, DDT, and Chlordane, are very effective killing agents. However, they become a problem due to their residual effect in the soil. These chemicals will remain in the soil after harvest and bring about depressed future production and give off flavors to many food crops. The increasing use of BHC in controlling the boll weevil emphasizes this, due to the effect on crops following the cotton. The Station has shown by experimentation on rats that these compounds are fat soluble and remain inactive in the body as long as the animals are fat. However, if the animals become thin and its fat reserve is used up, this toxic material is liberated into the body. The Station is continually learning more and more about these chemicals and hopes to be able to overcome these difficulties.

All of the sub-stations are carrying on experiments with the particular problems found on the crops and soils of their regions.

Anyone who cares to investigate will find that the Station has a job to do and is doing the job. We at Clemson have every reason to believe that even greater progress will be made in the future and that the people of South Carolina have every right to be proud of their Experiment Station and the men and women who made it what it is today.

ARMSTRONG TO GIVE PAPER IN STOCKHOLM

Dr. G. M. Armstrong and wife, Dr. J. K. Armstrong will present an invitational paper to the International Botanical Congress which will be held in Stockholm, Sweden, July 12th through the 20th. The title of the joint paper will be "The Comparison of the Host Relationship of the American, Egyptian, and Indian Cotton-wilt Fusaria.

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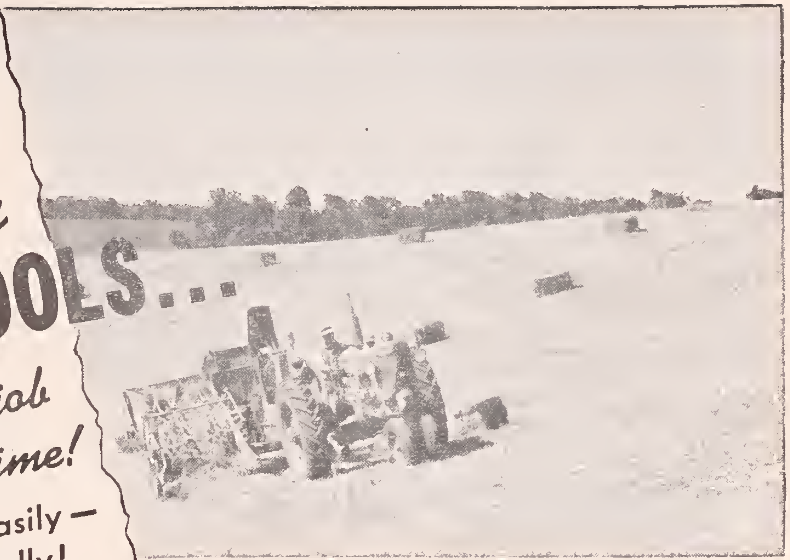
Quickly — Easily — Economically!



Lower Haying Costs!

MM HAY TOOLS GET ALL THE CROP ON TIME—EVERYTIME!! Every modern farmer knows that his hay crop is one of the most important crops on his farm. He knows that timely cutting of that crop is a most important factor in deciding its quality, and therefore its feeding and market value. Care must be taken to avoid cutting too early and also against allowing the crop to stand until full bloom has occurred and the nutrient value has begun to decline. Progressive farmers have learned that when they use MM Hay Tools their crop is cut right, on time, everytime.

MM UNI-MOWER is important to the haying time factor. This mower attaches to any modern tractor equipped with power-take-off. Equipped with a 7-foot cutting bar it *cuts up to 35 acres per day.* Since the power drive consists of a simple V-belt pulley, the sickle speeds can be easily changed to meet all cutting conditions . . . no gears to adjust and fewer wearing parts. MM Uni-Mowers are available in *pull-behind* and *side-mounted models* . . . mowers that allow farmers to spend less time in the field . . . mowers that are ready to cut the crop when it is *just right!*

MM SIDE-DELIVERY RAKE'S GENTLE HANDLING HELPS RETAIN FOOD VALUE! That's why so many modern farmers prefer this rake. The rolling action of the rake turns the heads into the center of the windrow leaving heavy butt end of the stems out where they will dry faster. Heads and leaves dry slowly and stay on the stem. The whole windrow dries more evenly and in less time, so that hay may be taken up sooner after cutting. Therefore there is less chance of loss by storm, and hay is better because few, if any, of the leaves in which most of the food value is concentrated are lost by breaking or tearing.

MM BALE-O-MATIC MAKES BALING A ONE-MAN JOB! That's important to farm businessmen who want to save money on their haying jobs. This baler is completely automatic . . . picks up the hay, slices, and ties it into firm bales with two 14-gauge high-tension steel wires while the hay is under compression. Bale-O-Matic bales are uniform, rectangular, square-cornered, and won't come untied when handling. No loose ends of wire left in the bales or in the field!

MM WINDROWERS CUT CROPS CLEANLY and deposit them in uniform windrows on top of the stubble. Even the finest hay seed crops are handled without injury. All controls are within easy reach of the operator, permitting easy change of cutting height and height of reel "on the go".

The pull-behind type MM Uni-Mower cuts up to 35 acres per day with 7-foot sickle.

MM Windrower quickly harvests alfalfo crop. Notice the uniform windrows.

MM Side-Delivery Rake turns heads of crop into center of windrow for even drying.

★ ***QUALITY CONTROL IN MM FACTORIES ASSURES DEPENDABLE PERFORMANCE IN THE FIELD!***

MINNEAPOLIS-MOLINE
MINNEAPOLIS 1, MINNESOTA

Farming Trends

(continued from page 5)

The pattern of farming in South Carolina has thus changed materially in the past quarter-century. Our farmers are changing from the tradional cotton-corn system of crop production, which enables them to do a better job of conserving and improving their soils, to develop new sources of income, and to make more efficient, year-round use of farm labor.

Much has been learned in recent years about soils and their conservation and improvement; proper use of fertilizers; improved varieties of crops; methods of planting and cultivation; control of insects, diseases and parasites; breeding and feeding of farm animals; forest management; grading, packing, processing and marketing farm products; the use of labor-saving machinery and equipment, and other improved practices of farm and home management. Prospects are excellent for a continued steady rise in farm income, and for improved standards of living for our farm population.

The young farmer today will do well to take full advantage of every new method as it develops, and to look upon his choice of a career as a business which requires constant study and attention to skilled management.

QUESTIONS

A Aslant, I lie surrounded by a word
Which twice repeats a virtue which you've heard.

B A letter (from the Greek), a conjunction (transposed),
One from Flanders, here reflected and posed.

C A ten dollar bill, and the term "to sell"
Gives one a title, if they're combined well.

Answers and names of winners will be available at magazine office. Winners will be notified by mail.

Chesterfield

RULES FOR CHESTERFIELD HUMOR MAGAZINE CONTEST

1. Identify the 3 subjects in back cover ad. All clues are in ad.
2. Submit answers on Chesterfield wrapper or reasonable facsimile to this publication office.
3. First ten correct answers from different students win a carton of Chesterfield Cigarettes each.
4. Enter as many as you like, but one Chesterfield wrapper or facsimile must accompany each entry.
5. Contest closes midnight, one week after this issue's publication date.
6. All answers become the property of Chesterfield.
7. Decision of judges will be final.

LAST MONTH'S ANSWERS & WINNERS

A 20th CENTURY-FOX. This modern age is the 20th Century; a furry friend is a fox.

B BLANCH, N. C. The Dogwood State is North Carolina, Blanch means to pale, or grow white.

C CHESTERFIELD—ABC. The smoke that satisfies is Chesterfield. In the frame the initial letters of lines 1, 8 & 3, spell A B C.

WINNERS . . .

Penn Colvin, A. C. Livingston, W. J. Coker, Lee Ellis, J. T. Worley, W. T. Hughes, J. J. Paupalos, J. T. Hair, James K. Price, Paul Ramsey. Turn your contest entries in to Harry Dukes in Room 3-B29. Be sure to read the directions carefully.

Extension Service

(continued from page 15)

The Smith-Lever Act, passed by Congress in 1911, provided for the estabishment of the Cooperative Extension Service as a part of the Land Grant College System. It provides for the cooperation of federal, state, and county governments with local people in planning, financing, and conducting a system of education in agriculture and home economics among farm people.

The Capper-Ketchum Act, passed by Congress in 1928, gave further support to extension work. The funds provided under this act must be matched by funds within the state before they become available.

A similar act, the Bankhead-Jones Act, passed by Congress in 1935, provided additional funds for the support of extension work. The funds provided under this act do not have to be offset by state funds.

In 1914, the General Assembly enacted a law providing for extension work in South Carolina in cooperation with the federal Smith-Lever Act. In 1929, legislation was enacted providing funds for placing county and home agents in all counties of South Carolina. In 1947, the General Assembly enacted a law providing for an assistant home agent in each county of the state.

Today, Extension Service personnel in the forty six counties of the state are working untiringly to provide the farm population with help and information in the following fields: Agricultural Economics, Agricultural Engineering, Agronomy, Animal Husbandry, Dairying, Entomology Plant Pathology, Forestry, 4-H club work, Horticulture, Marketing, Poultry, and Home Economics. Information in the above fields is supplied by extension specialists cooperating with the numerous agents of eac hcounty.

The South Carolina Agricultural Extension Service is under the skillful direction of President R. F. Poole, Director D. W. Watkins, and Asst. Director T. W. Morgan, and has come a long way since its beginning as a mere group of agricultural societies.

Men and Machines That Help Maintain International Harvester Leadership

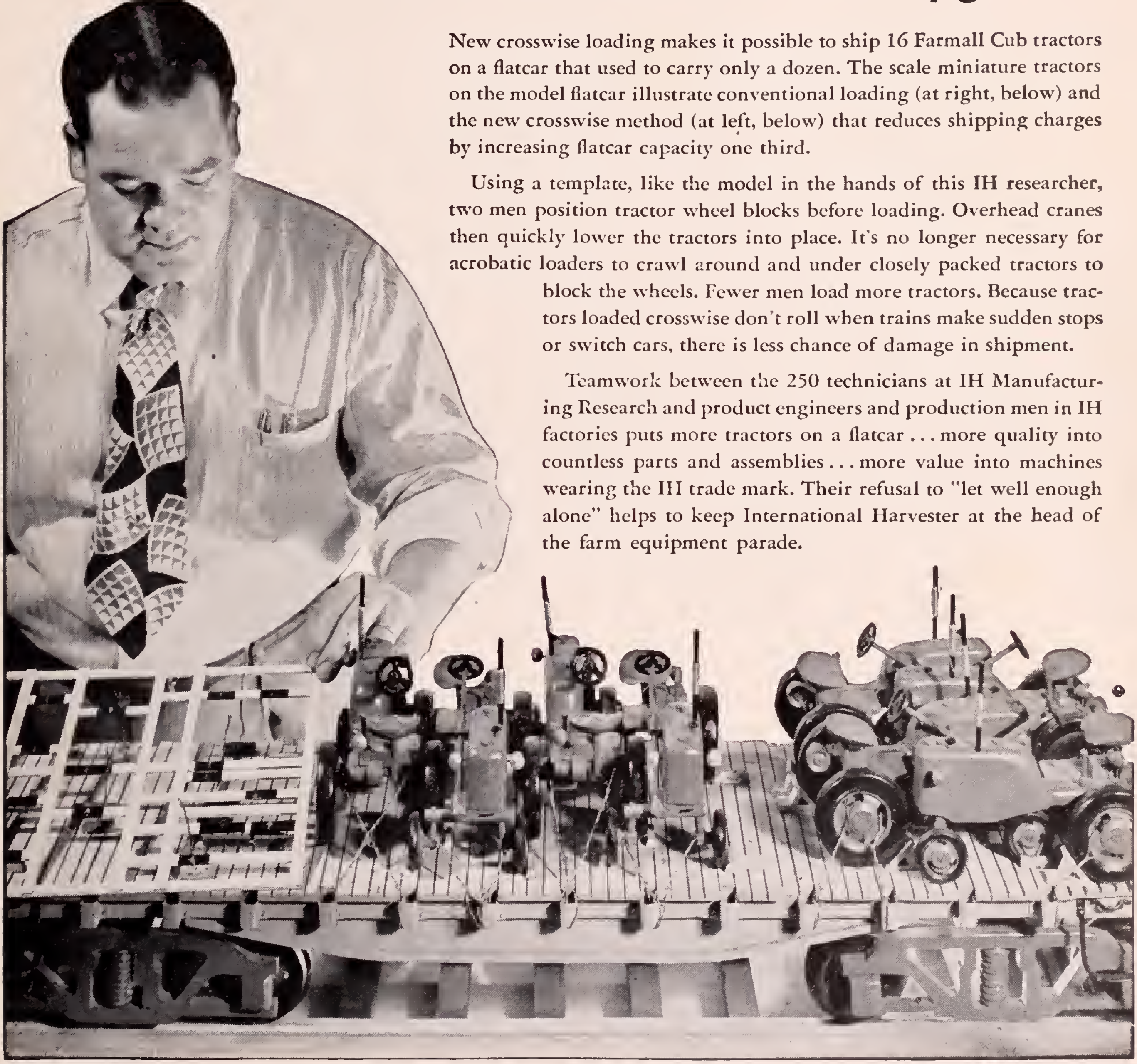
Carloading research cuts shipping costs

by boosting flatcar capacity 1/3

New crosswise loading makes it possible to ship 16 Farmall Cub tractors on a flatcar that used to carry only a dozen. The scale miniature tractors on the model flatcar illustrate conventional loading (at right, below) and the new crosswise method (at left, below) that reduces shipping charges by increasing flatcar capacity one third.

Using a template, like the model in the hands of this IH researcher, two men position tractor wheel blocks before loading. Overhead cranes then quickly lower the tractors into place. It's no longer necessary for acrobatic loaders to crawl around and under closely packed tractors to block the wheels. Fewer men load more tractors. Because tractors loaded crosswise don't roll when trains make sudden stops or switch cars, there is less chance of damage in shipment.

Teamwork between the 250 technicians at IH Manufacturing Research and product engineers and production men in IH factories puts more tractors on a flatcar . . . more quality into countless parts and assemblies . . . more value into machines wearing the IH trade mark. Their refusal to "let well enough alone" helps to keep International Harvester at the head of the farm equipment parade.



International Harvester Builds McCormick Farm Equipment and Farmall Tractors . . .
Motor Trucks . . . Crawler Tractors and Power Units . . . Refrigerators and Freezers . . .

mid-century 1950

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"The Eagle and the Hawk"
A PARAMOUNT PICTURE
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"Smoke my cigarette, Chesterfield, they're Milder... *much* Milder"

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C. J. Gholson

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The Best Cigarette for You to Smoke

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For CHESTERFIELD CONTEST See Page 32

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